

# Chemical Week

June 9, 1951 .

Price 35 cents

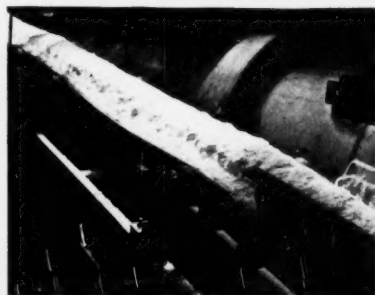


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## HANNAH JONES IS ROUGH ON

*Soda Ash*

Hannah probably doesn't know it, but the glasses she handles every day contain one of the most widely used of all industrial chemicals. The largest single consumer of soda ash is the glass industry, where it is an essential raw material in regular glass formulas.

But the demand for this basic chemical is great in other fields, too. The chemical industry itself uses an enormous tonnage of soda ash in the manufacture of other chemicals. Other industrial consumers include soap, cleansing powders, pulp and paper, textile, iron and steel, aluminum and non-ferrous metals.

With new and expanding uses supplemented by needs for defense, the problem of producing adequate supplies for all is acute. To help meet this increased demand Mathieson is expanding its basic alkali production. Inquiries are always welcomed from con-

sumers who desire assistance in solving a future soda ash supply problem. Mathieson Chemical Corporation, Mathieson Building, Baltimore 3, Maryland.

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# Chemical Week

Volume 68 Number 21

June 9, 1951

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June 9, 1951

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### POLYCO BUTADIENE- STYRENE LATICES with Compounding Ease

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6.	50/50	417-50RS	417-50NS	Continuous clear film. Tough and flexible with slight tack.
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\*Polycos in the same horizontal row have essentially same film characteristics.

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\*Column B lists latices stable to acids and metal ions. Latices in A and B available at 45% total solids content.

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For complete information send for data sheet P-24.



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Methyl Nonyl Ketone  
2-Methyl-1-pentene  
4-Methyl-2-pentene  
Methylphenyl Acetate  
Methylphloroglucinol  
N-Methylpyrrole  
Methyl Testosterone  
5-Methylthiouracil  
6-Methylthiouracil  
 $\beta$ -Methylumbelliferone  
Methyluracil  
Methylvinyl Ketone  
Monoacetone Glucose  
Monobutylamine  
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Monofluoroacetic Acid  
Monosodium Glutamate  
Mucic Acid  
Muonic Acid  
Murexide  
Myanesine  
Myoglobin  
Myristicoline Chloride  
Myristyl Alcohol  
Myristyl Iodide  
 $\alpha$ -Naphthaleneacetic Acid  
1,5-Naphthalenediamine  
 $\beta$ -Naphthalenesulfonic Acid  
1,3,6-Naphthalenetrisulfonic Acid  
(Sodium Salt)  
 $\beta$ -Naphtholphenylaminomethane  
Hydrochloride  
 $\beta$ -Naphthol Salicylate  
 $\beta$ -Naphthionitrile  
 $\beta$ -Naphthoquinoline  
1,4-Naphthoquinone  
Naphthoresorcinol  
 $\alpha$ -Naphthylacetic Acid  
2-Naphthylamine-3,6-disulfonic Acid  
1-Naphthylamino-3-diethylamino-  
propane Hydrochloride  
N- $\alpha$ -Naphthyl-N'-diethyltrimethy-  
lenediamine Hydrochloride  
1-Naphthylethylenediamine Dihy-  
drochloride  
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## OPINION . . . . .

### Evaporating: Industries

TO THE EDITOR: What's happening to Chemical Industries . . . Chemical Industries Week . . . Chemical Week? I'm confused. Not long ago your excellent publication was simply "Chemical Industries"; early this year a "Week" was appended; and, over the months I've noticed . . . on your cover . . . that the type size of the "Industries" has been getting smaller and smaller . . . and now it has evaporated.

What to expect now? Is the next development to be simply "Chemical" . . . and then perhaps just "Chem" . . .

F. R. SNADE,  
Montreal, Canada.

*Reader Snade, with a close eye on the cover, has spotted the transition in name from Chemical Industries to Chemical Week. Here's why: Many of our readers told us that they would prefer the name Chemical Week ("less of a mouthful than Chemical Industries Week"). And even now a good many are shortening that—in conversation—to Chem Week, even as they dubbed Chemical and Metallurgical Engineering "Chem & Met."*

*The name only has been changed; CW's editorial purpose and philosophy remains the same.—Ed.*

### Kudos to Idson

TO THE EDITOR: . . . I have just read Dr. Idson's article on Antihistamines on my return from Europe. . . . It is very well done . . . properly documented. . . .

In my opinion Dr. Idson is one of the few well informed people in this field.

CHARLES P. HUTTNER,  
Research Associate,  
Chemical-Biological  
Coordination Center  
National Research Council,  
Washington, D. C.

### Future: Promising

TO THE EDITOR: We have just read your excellent article on the uses and applications of ethylenimine (May 19). . . . We have stoutly maintained that ethylenimine can develop into a product of sizable importance.

Although the present costs of preparation place this monomer in the class of costly research chemicals, there is every reason to believe pure ethylenimine can be made for a fraction of present selling price. The raw materials used in the preparation of

ethylenimine are cheap and there are no costly intermediates. . . .

We are ready to put up a pilot plant for larger production as soon as market data will indicate. . . .

Our laboratory has also pioneered in the preparation of substituted derivatives of ethylenimine. We now offer 2, 2-dimethyl-, 2-methyl-, N-methyl- and N-ethylethylenimine. These various substituents on the highly reactive ethylenimine ring make possible countless new applications to the technology of ethylenimines. . . . We are currently working on the synthesis of even more derivatives.

It may be of interest to your readers to know that we still have copies of our bulletins on ethylenimines. Over fifty literature references are included showing where one may find the original papers mentioned in your article. . . .

B. D. HALPERN  
Research Department  
Monomer-Polymer, Inc.  
Chicago, Ill.

### Soy Lecithin

TO THE EDITOR: As lecithin suppliers, we were very much interested in the article "Emulsifier Trend: Sharply Up" by J. P. Sanderson and F. K. Abel (May 26th). . . . However, we feel that it was most unfortunate that the authors were not more careful in their listing of Major Manufacturers of Chemical Emulsifiers, which shows only two lecithin manufacturers.

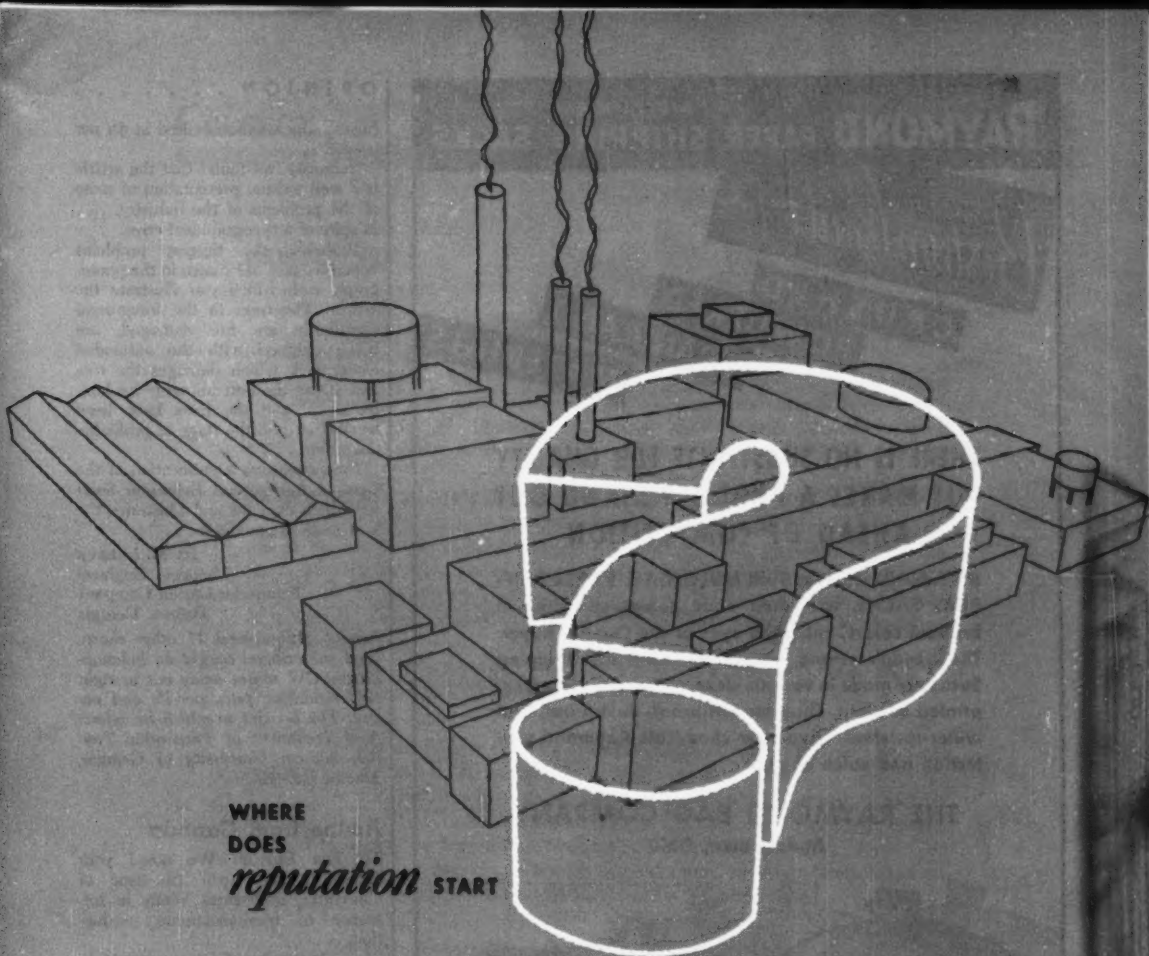
Our company has been a major supplier of soybean lecithin for over 20 years . . . our products are sold under the trade name of Yelkin . . .

W. K. HILTY,  
Ross & Rowe, Inc.,  
New York, N.Y.

*The list compiled by the authors was properly titled "Major Manufacturers of Emulsifiers" and included six makers of lecithin. Even though Ross & Rowe is a prominent supplier of the material—as Reader Hilty points out—it does not fall in the manufacturer category. It may be that the over-all list includes some firms that are not prime manufacturers, but the distinction is often hard to pin down accurately.—Ed.*

### Not That Bad!

TO THE EDITOR: From your Chemical Markets article on gum naval stores we read that the current price for gum rosin is about \$9 a pound. . . . If this is true our company will be glad to



**WHERE  
DOES  
*reputation* START**

Reputation, most cherished of all business assets, is difficult to achieve and must ever be earned over and again. In a business such as ours, the job of building and preserving reputation is the responsibility of everyone in the organization: management, the men and women in the plant, sales, service and office forces. With us, of course, the job starts in the Mallinckrodt laboratories, with the experienced chemists who control every process, supervise every operation, and develop and produce fine chemicals to meet the high specifications of industry. These facilities are conscientiously maintained so that our customers, as well as ourselves, can be sure that the Mallinckrodt reputation is earned again with every ampul, bottle, drum—or carload.

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## OPINION . . . . .

furnish any amount desired at \$8 per pound. . . .

Seriously, we found that the article is a well written presentation of some of the problems of the industry, . . . in spite of a typographical error.

Probably the biggest problems which we face are shown in the photograph with which you illustrate the article. The trees in the foreground apparently are fire damaged, are being chipped with the outmoded wood hack which damages the tree and makes the butt unusable for lumber . . . and the trees have been worked beyond the stage of profitable operation. . . .

I am enclosing a publication of the Georgia Agricultural Extension Service which explains and illustrates the best modern practices. . . .

ED M. MILNER  
Chemical Engineer  
Peninsular-Lurton Company  
Helena, Georgia

*Reader Milner (and 17 other sharp-eyed subscribers) caught an inflation-groggy CW writer away out in right field muddling price per lb. and per cwt. The booklet to which he refers: Acid Treatment of Turpentine Timber, Source: University of Georgia, Athens, Ga.—Ed.*

## Amine from Canada

TO THE EDITOR: We noted your article in the April 21 issue of CHEMICAL INDUSTRIES WEEK in reference to triethanolamine production. . . .

. . . It may be of interest to you to know that in addition to the American production as outlined our own company is engaged in the manufacture of these products in Canada. Canadian production at the moment is approximately one-eighth of the estimated production in the United States. . . .

Substantial tonnage from our production has been made available to American users during the past year, thus in some small measure helping to alleviate the present shortage.

W. P. GUDGEON  
President  
Canadian Aniline  
and Extract Co., Ltd.  
Hamilton, Ont.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: The Editor, Chemical Week, 330 W. 42nd St., New York 18, N. Y.

**NEWSLETTER**

Phenol holds the spotlight this week as two firms—one in Canada, one here—plan to install brand-new processes based on cumene.

In Canada, British American Oil Co. and Shawinigan Chemicals Ltd. have set up a jointly-owned corporation, B.A.-Shawinigan Ltd., which will erect a plant in Montreal East to produce phenol under Hercules Powder-Distillers Co. patents (C.I. Newsletter, March 1949). Process involves alkylation of benzene with propylene to form cumene, oxidation to the hydroperoxide, and splitting to phenol and acetone.

The new plant, to be completed early in 1953, will produce enough phenol and acetone to meet Canada's needs. (Canada now makes no synthetic phenol, imports about 6 million lbs. a year and could use more.)

In this country, Barrett Division will use a cumene-based process in a new \$8 million plant at Philadelphia. Phenol output is estimated at 25 million lbs. per year.

Representatives of two European firms are now here, hope to exploit a cumene-based process in their countries.

Texas users of natural gas—and that includes a raft of chemical companies—appear to be tagged for a large tax bite.

A bill that has already passed the State House slaps a 1¢ tax on each 1,000 cu. ft. of gas "gathered" by a pipeline. The Senate proposes instead to boost the production tax from 5.72 to 10% of value.

Whatever version is finally agreed upon, revenue from taxes on gas would rise from the current \$13 million to \$25-30 million.

Several chemical commodities have come under Washington's scrutiny this week. Upshot: new orders, new recommendations, new decisions.

National Production Authority looked hard at soda ash, decided that current capacity—4½ million tons a year—is ample; and only a million tons a year more will be needed by 1953. This answers alkali-chlorine producers, who have been wondering why certificates of necessity have not been granted for soda ash facilities.

Artificial graphite and carbon electrodes go under allocation July 1. A new order, M-66, controls inventories and deliveries.

NPA's tin conservation order (M-25) is due for revamping soon. Reason: It's so confusing hardly anyone understands it.

Sulfur is now under allocation (M-69). Use and inventories come under strict control immediately.

The Department of Agriculture, meanwhile, is advising county agents to recommend chlordane, toxaphene or lindane instead of sulfur for chigger control.

Look for action soon by Stuart Symington, new RFC boss, to knock down the price the Government pays for natural rubber. Possible courses of action: more synthetic capacity; or a subsidized, lower price for synthetic. Either course will curb demand for natural, tend to lower price.

The Torquay tariff decisions are causing a stir here (see p. 9) but Canadian chemical makers are even more upset. Many of them feel that their negotiators—probably through ignorance of the industry's complexities—bumbled things pretty badly.

One example is mixed insecticides, now shorn of their 7½% duty protection. The cut is too late to have any effect this season, but next year Canadian formulators will have rough competition from U. S. firms.

Biggest upset is in store for ethanol, Canadian makers of which have long enjoyed high, identical prices. The duty on isopropanol was slashed from 50¢ to 25¢ a gallon, will give U. S. isopropanol makers a beachhead in Canadian markets where the two alcohols are interchangeable. It won't happen immediately, though, for isopropanol is now tight.

Tariff concessions of less significance were made on fatty alcohols (from 20% ad valorem to 1½¢ a lb.) and on acetone (cut 5%).

Canadian firms can't understand why their and our negotiators didn't do something about aniline and chlorine. Canada has an exportable surplus of both, U. S. firms are eager to buy, but the high U. S. import duties (25% ad valorem, an added 3½¢ per lb. on aniline) throttle sales.

Postponement of the Office of Price Stabilization's deadline for chemical reports from May 28 to July 2—which OPS says is absolutely final—has allayed last month's frenzy.

But various segments of the industry continue to press for definite dollars-and-cents ceilings. Adding their voices to the general demand are glycerine makers, manufacturers and users of alcohol and solvents, and the paint, varnish and lacquer industry.

Further news from Washington concerns firms which have obtained certificates of necessity. Defense Production Administration is now ordering them to submit quarterly reports on the status of their projects.

DPA says it needs the reports to gauge the progress of industrial expansion under the tax-saving program.

Thermal fixation of nitrogen will get a plant-scale try. Food Machinery & Chemical Corp. is installing equipment for the Army Ordnance Department in the former Sunflower Ordnance Plant, Lawrence, Kan.

The process, developed by the University of Wisconsin and Food Machinery, involves oxidation of nitrogen in a regenerative furnace.

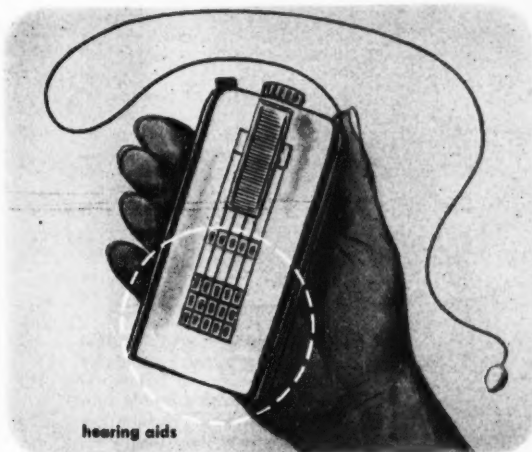
Production from this plant will help fulfill the U. S. Department of Agriculture's ambitions, expressed at a recent government-nitrogen industry meeting, for a yearly increase of 200,000 or more tons of fixed nitrogen production. One hindrance to definite expansion plans: inability of military planners to state their future needs.

You can add another 2.3 million pounds to the estimated resorcinol capacity—5.7 million pounds—after present expansions are completed (CIW, May 19). Koppers Co. will increase its output at Petrolia, Pa., by 1½ million pounds, and its current capacity is 4½ million. A new process will account for a portion of the capacity increase.

Koppers is about to bring out a new room temperature-setting phenol-resorcinol-formaldehyde adhesive with properties approaching those of the resorcinol-formaldehyde products. Advantage: They're cheaper.

... The Editors

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IBP	290.0
5 ml.	293.0
50 ml.	295.0
95 ml.	296.5
EP	298.0

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## Briefs

### From recent literature

Dichlorobutadiene resins can be stabilized against discoloration and other deterioration by using as little as 0.5% by weight of a 4-alkylphenyl salicylate prepared from nonylphenol.

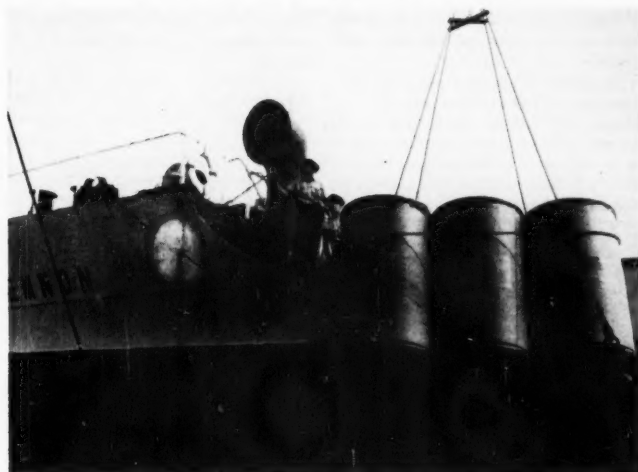
Polyethylene's surface characteristics can be improved by water soluble alkyl aryl polyglycol ethers. These are made from alkyl phenol and ethylene oxide and applied as an aqueous solution containing from 0.25% to 10% by weight of the ether. Deposition should amount to two to fifty milligrams of alkyl aryl polyglycol ether per square yard of film surface. Deposition temperatures should be maintained within the range 0° to 45°C.

Long chain compounds of the alkyl heterocyclic type can be made by condensing 2-nitro- or 2-amino-4-alkyl phenols with suitable substances to affect ring closure. Resulting products show properties not demonstrated by their unsubstituted or short-chain homologues.

An addition agent for mineral oil lubricants is produced by causing a long chain phenol to react with sulfur monochloride and phosphorus sesquisulfide. This additive confers excellent pressure-carrying, corrosion-inhibiting and detergent properties on the oils. Corrosion-inhibiting properties may be increased by adding a condensation product of the aluminum salt of the alkyl phenol derivative and formaldehyde or a formaldehyde-yielding product.

These developments are abstracted from recent publications or U. S. patents. They may suggest other applications of Jefferson Alkyl Phenol C-9 in your products or processes.

# BUSINESS & INDUSTRY . . . . .



CHEMICAL IMPORTS: Bound to rise as U.S. lowers tariff walls.

## Traffic in Chemical Tariffs

Reciprocal lowering of tariffs on chemicals figures heavily in Torquay agreements U.S. reaches with 15 countries.

Western Germany chief beneficiary of U.S. concessions: may emerge as strong competitor in domestic chemical market.

Canada bolts Commonwealth bloc on Empire preferences issue; will benefit by lowered U.S. duties on many chemicals.

Experts in international chemical economics had a hard time this week. They were busy rounding out their predictions of the effects that the tariff agreements reached at the recent international trade conference at Torquay, England will have on the shape of things to come.

Although there are some minor differences of opinion, most of the experts agree that the United States took a step toward giving aid to some potential competitors in this country's domestic chemical market. Western Germany, for instance, benefited considerably by the terms of the agreement. And only time will tell whether the tariff concessions granted Germany and 14 other countries will boomerang or have a salutary effect on this country's international trade.

Those in favor of the concessions granted by the United States claim

that the general downward revision of our tariff schedules will make it easier for U.S. chemical producers to sell many of their products abroad. They base this argument on the fact that American concessions begot reciprocal concessions on the part of the other signatories to the conference agreement.

**Con and Pro:** Many U.S. producers continue to wonder, however, why it is necessary to gain concessions when the domestic industry is having its hands full satisfying the emergency-born home market. Proponents answer this one by claiming that the international political situation demands that the U.S. take a strong lead in the furthering of international trade—and what better way is there to do it than by lowering tariffs?

**Holdouts:** Although new U.S. schedules were negotiated with 15 coun-

tries, including Canada, attempts to reach agreements with the United Kingdom, Australia, New Zealand and South Africa failed. The principal reason: Imperial preference. Although Canada bolted, the rest of the Commonwealth bloc stood firm for imperial preference—the practice of placing discriminatory duties on non-Commonwealth products.

**Setback:** Many adherents of the reciprocal trade philosophy in this country fear that the refusal of the Commonwealth bloc to conclude tariff cutting agreements with the U.S. may lessen the chances of the Reciprocal Trade Agreements Act to be renewed by Congress. But so far the act has had smooth sailing in the high legislative body. The big issue seems to be that of deciding how long an extension will be granted to the life of the act. The Senate-passed version calls for a 2-year extension; the House-passed version calls for 3 years more.

**Western Germany:** Germany seemed to get the best across-the-board deal in the tariff barter exchange. Specifically, it was granted a reduction from 7 cents a pound plus 40 percent ad valorem duty to 3½ cents a pound plus 25 percent ad valorem on certain coal-tar intermediates and finished coal tar products. This concession marks the first reduction in the U.S. duty on these products since the tariff act of 1930. U.S. imports of these materials amounted to only \$422,000 in 1949, about half of which came from Germany. But business may get better for the Germans due to the lower U.S. tariffs.

**Benelux:** Cobalt oxide and rayon staple duties were reduced for the benefit of the Benelux countries. Cobalt oxide can now come in at a duty of 5 cents instead of 10 cents a pound. Rayon staple fiber was cut from its present 20 percent to a 15 percent duty.

**Canada:** It was quite worthwhile for Canada to bolt the Commonwealth bloc. U.S. concessions include considerable cuts (most by 50 percent) on a wide range of Canada's choicest exports. In most cases this meant a drop from 25 percent duties to 12½ percent duties.

Other countries also benefited by U.S. cuts in tariffs—but many of these reductions occurred in the duties placed on consumer and other non-

chemical items. Other side: In return for the U.S. slashes, many other countries lowered their tariffs accordingly. Canada removed a 12½ percent tax on paraffin wax used in candles and cut by 5 percent the duty on wax for other uses. Duty on lubricating greases was lowered by 2½ percent and insecticides are now admitted into the Dominion duty-free.

**France:** France reduced its duties on a number of chemical and lubricants. Propyl and isopropyl alcohol duties were reduced by one-third. And soaps were cut 25 to 40 percent.

Germany reciprocated for the American slashes by lowering their walls

on boric acid, borates, some alcohols and glues. Most of Italy's concessions were in the lowering of tariffs on machinery. But Turkey cut the duty on petroleum jelly in half and agreed to make a 20 percent reduction in the duty on a large number of industrial chemical products including synthetic organic detergents and flavoring compounds.

It will probably take some time before the full effect of these new arrangements will be felt by the signatories of the Torquay agreement. But it is obvious that duties on chemical products have become major chips in the game of international politics.

nominically hauled for treatment of roads 100 miles or more from mills.

Actually the liquor is a solution of lignin and sugars. Lignin, which holds wood fibers together in the plant, exerts the same adhesive action on silt and clay particles of road surfaces, binding them together with sand and small gravel constituents into a compact mass.

In addition to the surfacing and dust-laying job, applications of sulfite waste produce other desirable side effects. Applied hot and fresh it kills weeds on road shoulders. Corrosive gases pass off as it cools and leaching by rain provides a certain amount of fertilizer value for adjoining sod. By laying dust it reduces wear on automobile fenders and motors and seems to have a protective effect on metal and rubber. It also provides an excellent surface for subsequent blacktopping.



ROAD TREATMENT: By-product of an ultimatum.

## Waste Makes Haste

Sulfite liquor wastes have speeded travel on rural byways in Wisconsin. As a road binder they compact "dirt" roads to a non-dusting, tough surface resembling blacktop—so tough, in fact, that it will blunt steel tools.

The pulp and paper industry has long been castigated for stream pollution. Increasing pressure on the state legislature has put teeth in the anti-pollution law—long on the books, but never enforced. An ultimatum requires the industry to clean up its effluent by the end of 1951.

Some time ago, research by the Sulfite Paper Manufacturers' League, Inc., Appleton, Wis., indicated three possible solutions of the waste disposal problem: The liquor can be used as a nutrient for producing Torula yeast; concentrated and burned as a fuel in boilers; or used as a road binder. Kimberly-Clark Corp., Hoberg Paper

Mills, and Marathon Corp. have chosen the latter method.

**No Processing:** No concentration or other treatment is necessary. The waste from the digester is pumped directly into tank-truck sprayers. County highway departments are not charged for the waste liquor—merely for hauling costs. Considerable savings are possible, since these charges amount to only about half the cost of other binders. A mile of road within ten miles of the plant can be treated for roughly \$100. Additional savings are possible if the county has its own equipment for hauling and application. Other treatments are considerably higher in central Wisconsin: Calcium chloride dust laying runs about \$300 per mile, oiling—\$1500, blacktopping—\$8000 and permanent concrete paving—\$30,000 per mile. Sulfite road binder can thus be eco-

## Preamble Weight

Inventors and their attorneys are today recasting the wording of claims in their inventions in light of a recent decision by the Court of Customs and Patent Appeals (*Kropa v. Robie and Mahlman*, 88 USPQ 478). In its decision the Court analyzes 37 previous decisions on the problem of whether the preamble or introductory phrase of a patent claim should be considered to define the invention. The weight given to the preamble of a claim may spell the difference between the receipt and denial of a patent; or, in the case of an interference, which one of two or more inventors gets the patent.

In the case before the Court, joint inventors Robie and Mahlman had already obtained a patent that claimed an abrasive article in which abrasive grains were bonded together by a particular kind of synthetic resin. But Kropa contested the claim, said he was the inventor. His claim was based on the disclosure in a series of applications filed back December 30, 1938. Robie and Mahlman's filing date was May 21, 1945.

The inventors were fighting over counts (claims) which contained the preamble, "An abrasive article comprising . . ." Kropa's earlier applications were directed to ". . . resinous compositions and processes of producing them," the object being "to prepare improved resinous and especially to obtain clear, colorless gels." His applications did not expressly disclose an "abrasive article." The following statement appeared in the applications:

"Alternatively the reactive resin-reactive solvent combination may be mixed with one or more of the various fillers, e.g. wood flour, wood fiber, paper dust, clay, zein, glass wool, Carborundum, paper, cloth, sand, white, black or colored pigments, etc."

**No Weight:** Kropa contended that the words "abrasive article" in the counts, over which the interference battle was fought, should be given no weight. He argued that any combination of abrasive grains and binder is inherently an abrasive article, and since the counts contain no limitation on the proportions of abrasive grains or binder, they should be read to cover any and all combinations of abrasive grains with the binder specified. Since his 1938 applications disclosed addition of abrasive grains such as Carborundum, sand, and granite dust to the resins specified by the counts, he contended that his applications contained an adequate disclosure of the counts.

The Court was presented with two issues: 1. Does the phrase, "an abrasive article" introduce a limitation into the counts? 2. Is a disclosure of "an

abrasive article" inherent in Kropa's 1938 applications?

The Court analyzed the 37 decisions which it had made on the weight to be given an introductory clause in a patent claim and held that such a clause defines the invention and could not be ignored as a limitation where the clause was necessary to give life, meaning, and vitality to the claim.

In the particular case the expression "an abrasive article" was held essential to point out the invention defined, since "In our judgment those introductory words give life and meaning to the counts for it is only by that phrase that it can be known that the subject matter defined by the claims is comprised as an abrasive article."

The Court pointed out that every union of substances capable, among other things, of use as abrasive grains and a binder is not "an abrasive article." The term calls for a distinct relationship between the proportions of grain and resin comprising the article. The Court held that the quoted excerpt from Kropa's 1938 application does not inherently disclose an abrasive article, awarded priority of the invention to Robie and Mahlman.

of putting all idle PMP capacity to work. A request for PCP (1-phenyl-3-carbethoxy pyrazolone) was the hook. Reasoning that PCP (from phenyl hydrazine and oxalacetic ester) shouldn't be any harder to make than PMP (from phenyl hydrazine and acetoacetic ester), the Division went ahead. A sample was delivered in June and a pilot-plant was turning out half-ton batches by summer.

Now in commercial production, PCP—like cousin PMP—has its future in dyes. It is already established as an intermediate in the manufacture of Vulcan Fast Red (Patent 1,977,936); and a good deal of further development on light-fast colors is now under way. Price now stands at \$3.60 a pound in 250 lb. drums, and \$4 a pound in smaller lots.

## More Petrochemicals

**Latest** to join the petrochemical manufacturing parade are Cities Service Co. and Firestone Tire & Rubber Co., which have formed a co-owned subsidiary, American Petrochemical Corp., to produce chemicals from petroleum hydrocarbons.

For some time Firestone has been a producer of vinyl plastics, using purchased monomers, at its Pottstown, Pa. plant. It is thus logical that vinylidene chloride and vinyl chloride would be among the first products. However, the new company states that such is not to be the case. The initial products will not contain chlorine, and Firestone plans to continue to purchase monomers for the time being.

Cities Service, at Tallant, Okla., is the pioneer in production of chemicals—principally methanol and formaldehyde—by direct oxidation of petroleum hydrocarbons. No comment is available concerning this possibility for the new subsidiary. However, it is believed that a hydrocarbon oxidation plant does not enter the immediate planning.

**Ethylene First:** A spokesman for the new company states that an ethylene and ethylene chemicals plant is slated for early construction. But there's no word as to just which of the many ethylene-derived materials will be produced first. Good bet: ethylene glycol. Both Firestone, through its large chain of stores, and Cities Service, through its numerous filling stations, market millions of gallons of anti-freeze each year. It would make good sense for the two organizations to fill their anti-freeze cans with their own product.

## Drug's Loss, Dye's Gain

**Introduction of Winthrop-Stearns' newest chemical product is the latest step in the company's climb to a place of prominence in the dyestuff industry. The compound, 1-phenyl-3-carbethoxy pyrazolone-5, can trace its lineage back to a group of potent pyrazolone-derived pharmaceuticals. Although 1-phenyl-3-carbethoxy pyrazolone-5 (PCP) will probably come into its own as a dye intermediate, its development is firmly rooted in drug manufacture. Close relationship to 1-phenyl-3-methyl pyrazolone (PMP) is the reason. PMP, precursor of the once-prominent aminoantipyridines, is the cornerstone of Winthrop-Stearns' dyestuff trade.**

Not too long ago, nearly all PMP went into the production of Pyramidon\*, a popular analgesic and antipyretic. Over-the-counter sales of the drug provided a very substantial demand for PMP. But this happy situation came to an abrupt end after several cases of granulo-cytopenia (toxic blood symptom) were attributed to Pyramidon. Sales hit the deck and never got up: today the drug is limited to prescription use.

**Little Comfort:** Drop in U.S. de-

\* Trade name of N-dimethylamino antipyridine.

mand, however, did not affect the foreign market. Pyramidon and a derivative, trade-marked Novaldin, lost little ground abroad, and still find wide use in Europe and South America.

But this is of little comfort to American PMP producers. For a time, many small American antipyridine manufacturers supplied the foreign field, using Winthrop-Stearns' PMP as an intermediate. German industrial resurgence after World War II recaptured the foreign antipyridine market, forced the Americans out, and wiped out the last major pharmaceutical outlet for domestic PMP.

Faced with the sorry prospect of a dead market for substantial PMP productive capacity, Winthrop-Stearns formed its Special Chemicals Division to work up new outlets. Dyes were the natural choice, and the company soon joined Dow Chemical as a supplier of PMP to the dyestuff industry. Today PMP is once more a multi-ton item with Winthrop-Stearns; but with dye makers instead of drug makers on the receiving end.

**Quick Action:** In February of last year, the Special Chemicals Division saw the chance to further its objective

Current List of DPA-Certified Chemical Facilities

COMPANY	LOCATION OF FACILITIES	PRODUCTS	AMOUNT ELIGIBLE	PERCENT CERTIFIED
Heyden Chemical Corp.	Princeton, N. J.	Penicillin	\$3,600,000	65
Abbott Laboratories	North Chicago, Ill.	do.	4,345,000	65
Bristol Laboratories, Inc.	East Syracuse, N. Y.	do.	6,054,000	65
E. R. Squibb & Sons	New Brunswick, N. J.	Penicillin, Streptomycin	3,472,000	60
Chas. Pfizer & Co., Inc.	Groton, Conn.	Antibiotics: (Penicillin & Streptomycin)	8,692,000	65
Chas. Pfizer & Co., Inc.	Brooklyn, N. Y.	do.	890,000	65
Chas. Pfizer & Co., Inc.	Torre Haute, Ind.	do.	475,000	65
American Cyanamid Co.	Pearl River, N. Y.	Aureomycin	6,000,000	60
Cutter Labs.	Berkeley, Calif.	Penicillin	146,988	70
Novocal Chem. Mfg. Co., Inc.	Brooklyn, N. Y.	Anesthetic Cartridges	85,000	50
J. T. Baker Chem. Co.	Phillipsburg, N. J.	Penicillin	168,100	70
Climax Uranium Co.	Outlaw & Calamity Mess, Colo. & Cactus Rat, Utah	Mineral ores	173,699	90
Continental Can Co., Inc.	Hopewell, Va.	Drum Liner Board	7,350,846	50
Hooker Electrochemical Co.	Tacoma Wash.	Chlorine	2,734,592	50
Titanium Metals Corp. of America	Henderson, Nev.	Titanium metal	14,162,840	90
Phillips Oil Co.	Sweeny, Texas	Aviation Gasoline	8,417,400	85
Gloss-Sheffield Steel & Iron Co.	Birmingham, Ala.	Coke & Coal Chemicals	1,976,200	85
Cosden Petroleum Corp.	Big Spring, Texas	Gasoline	270,000	75
Standard Oil Co. (Indiana)	Whiting, Indiana	Benzene	1,170,000	85
Humble Oil & Refining Co.	Baytown, Texas	Alkylate	177,845	100
Stauffer Chem. Co.	Richmond, Calif.	Ferric Sulfate	147,204	50
Bethlehem Steel Co.	Sparrows Point, Baltimore City, Md.	Sulfuric Acid	4,000,000	70
General Chem. Div., Allied Chem. & Dye Corp.	Newark, N. J.	Sulfuric Acid	6,300,000	70
Stauffer Chem. Co.	Compton, Calif.	do.	114,000	70
General Chem. Div., Allied Chem. & Dye Corp.	Newell, Pa.	do.	1,910,000	70
American Smelting & Refining Co.	Corpus Christi, Tex.	do.	610,375	70
Garfield Chemical & Mfg. Corp.	Garfield, Utah	do.	3,583,000	70
Dow Corning Corp.	Midland, Mich.	Silicon metal	560,000	75
Crane Co.	Chicago, Ill.	Titanium metal	162,500	90
Montanto Chemical Co.	Texas City, Tex.	Styrene	8,600,000	70
Koppers Co., Inc.	Kobuta, Pa.	do.	3,691,000	70
do.	do.	do.	320,267	70
Rayonier Inc.	Fernandina, Fla.	Cellulose	2,985,535	65
Dow Chemical Co.	Midland, Mich.	Methyl styrene	10,241,000	60
Hercules Powder Co.	Hattiesburg, Miss.	Toxaphene	1,732,334	50
Buffalo Electro-Chemical Co., Inc.	Vancouver, Wash.	Hydrogen peroxide	5,770,000	50
Olin Industries	New York, N. Y.	Cellulose	17,439,000	65
Shell Oil Co.	Wood River, Ill.	Toluene	150,000	85
Dow Chemical Co.	Freeport, Tex.	Styrene	1,610,000	70
Pittsburgh Coke & Chem. Co.	Neville Island, Pa.	Phosphate insecticides	450,000	50
Camp Mfg. Co. Inc.	Franklin, Va.	Pulp-Kraft paper	6,282,314	55
Dewey & Almy Chem. Co.	Cambridge, Mass.	Synthetic rubbers	404,000	70

## Raw Materials First

Comparison of current certificate-of-necessity grants with those during World War II shows that the Government's primary emphasis now is on raw materials rather than on finished products.

As a result, the chemical industry has snared a healthy 9.4% of the granted value, compared with 5.9% during the war.

When the production emergency is past, firms with written-off facilities will enjoy a competitive advantage.

Although Korea and Pearl Harbor may seem pretty much alike to slugging, shrapnel-dodging GIs, they're quite different in the eyes of Washington planners. Justifiably so—for Pearl Harbor immediately plunged the U. S. into all-out war production, whereas Korea is still only a local

"hot" phase of a global cold war.

Results of this difference in approach stood out clearly this week as the Department of Commerce analyzed the 1,147 certificates of necessity issued since the start of the program last October. Total value of facilities certified is over \$5 billion,

of which about \$3.5 billion is eligible for 5-year amortization. (Another 300 certificate applications have been denied, 6,874 are still pending.)

**Materials Out Front:** Most striking difference between the \$5 billion in certified post-Korea facilities and the \$6.5 billion certified during World War II is the kind of operations covered.

During the war provision for additional iron and steel, nonferrous metal, chemical, petroleum and coal capacity accounted for less than a third (32.3%) of certified value; but in the current program it accounts for 72.4%. Conversely, weapons and the machinery and components to make them accounted for 31.8% last time, only 17.9% now. Transportation, power and other non-manufacturing facilities accounted for 34.9% of the 1940-45 total, only 9.7% in the October-to-now program.

What this says is that the U. S. is far better tooled, far better powered, far better criss-crossed with rails and rolling stock now than in 1940. But the limiting factor in production is raw material to feed our unprecedented industrial machine. Even with a quadrupled prewar capacity, the chemical industry has been encouraged, by certificates of necessity, to expand still further.

**After the Emergency:** How much this encouragement will cost the Government is moot, for it depends on future tax rates and individual corporate profit levels. If the tax rate remains unchanged and profit levels continue high, there will be no direct tax loss to the Government. Firms with certified facilities will simply make up, in the 6th to 20th year (assuming normal depreciation at 20 years) the taxes unpaid during the 5-year amortization period. Under such circumstances these firms will, in effect, enjoy the use of an interest-free Government loan.

If taxes rise, the firms may lose whatever immediate advantage they gain. If the emergency is of short duration, however, it is likely that—as in the past—tax rates will be lower, and the firms will thus further benefit by having depreciated their capital facilities in a period of relatively high taxes.

In any case, certified facilities will be largely written off in a period of guaranteed demand for their products; thus, when a buyers' market returns, they'll be in a strong competitive position vis-à-vis undepreciated production units.



SALES UP: Antara sales chief H. G. Shelton, GDC veep Franklin "look at record."

## Competition Is Great, But . . . .

One plus one equals a bigger one. This was the idea behind the merger last October of the Antara Products Division of General Aniline and Film Corporation with the Organic Chemicals Division of the General Dyestuff Corporation. An evaluation of the sales figures this week, for the period since the merger, showed emphatically that the idea of combining forces was a good one.

Specifically, the figures showed that the increase of sales volume since the consolidation amounted to over 30 per cent. This, officials estimate, exceeds by about 12 per cent the amount of sales increase that could have been expected if the groups had not been merged.

**House Divided:** The story behind the merger dates back to the days before World War II when both General Aniline and Film and General Dyestuff Corporation were part of I. G. Farben's interests in this country. General Dyestuff was the sales outlet for General Aniline, which was the producing unit. As a result the heavy sales emphasis was placed in the operations of General Dyestuff.

When America entered World War II the Alien Property Custodian seized the two companies and new managements were installed. At that time it appeared desirable for General Aniline and Film to do some sales development work of its own and so in 1944 the Antara Products Division of GAF was formed. Its function was to push

some of the newer compounds, especially surface active agents, that emerged from the plants of the mother company.

**Competition:** In the meantime, General Dyestuff got a renewed burst of sales energy and began to develop its own surfactant sales program. Before long a situation evolved in which the Antara Division of GAF and the Organic Chemicals Division of General Dyestuff were each others' toughest sales competitors. It became so complicated that even the customers were confused. They were called upon by two sales departments selling "competitive" products made in the same plants.

Fortunately, officials of both organizations began to realize the difficulty and do some heavy thinking on how to eliminate it. A decision was reached jointly by John C. Franklin, Executive Vice President of General Dyestuff, and Cary Wagner, Vice President of General Aniline, to move the Antara Division over into General Dyestuff and combine the manpower of the two chemical sales forces. At the same time it was decided to consolidate the technical service and product development staffs of the two selling groups. Object: Better service to customers.

Financially the move has proved to be a complete success. The salesmen of the combined forces like it too . . . they don't have to knock each other down in a mad race for the customer's door.

## FOREIGN . . . . .

**Canada:** Construction will start shortly on a new \$3 million plant to produce caustic soda, chlorine, and related products. Plant, to be located in Northern Alberta, will be operated by a new company—formed by Canadian Salt Limited. Canadian Salt is the present operator of the salt business formerly belonging to Canadian Industries Limited.

**England:** A new British plant is now producing polyethylene at an annual rate of 5,000 to 6,000 tons. The plant was built by Petrocarbon, Ltd. for Styrene Products Ltd. (a joint enterprise of Petrochemicals Ltd. and Erinoid Ltd.). At present styrene is being imported but eventually Styrene Products will make its own from raw materials supplied by Petrochemical's adjacent plant.

**India:** Arrangements have been completed for purchase by the U. S. from India of an initial 1½ million gal. of industrial alcohol. The agreement calls for a total of 20 million gal. to be supplied by August, 1952. It will come from the sugar industry in the State of Uttar Pradesh in North India.

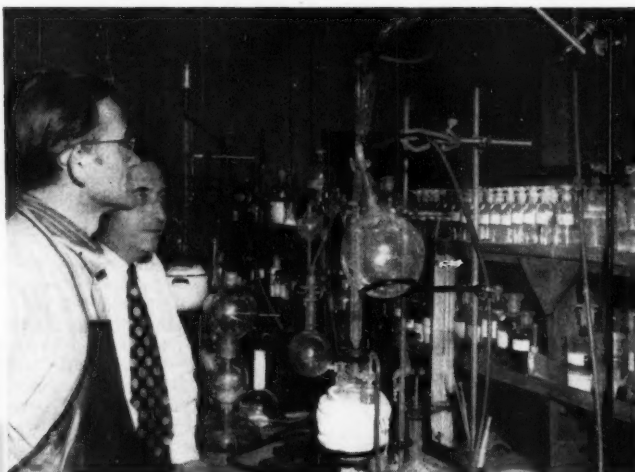
Some informed sources in India are cynical about final consummation of the deal, however. They say transportation difficulties in India, lack of storage space in Bombay, and adequate transportation to the U.S. make the contract impractical.

**Greece:** The Greek Ministry of Trade will shortly issue an invitation to bid on construction of a nitrogen plant, to be financed in part by the country's Central Loans Committee. Output of plant will be used as fertilizer for Greece's agricultural industry.

## EXPANSION . . . . .

**Batelle Institute:** The defense effort with its resultant demand for research services moved Batelle to build a new \$1 million laboratory at Columbus (Ohio). Completion of the lab—which is presently under construction—is expected to effect a 15 to 20% increase in research services.

**Brown Co.:** To insure full production during the summer months, Brown (paper and pulp producer) has started construction of a lagoon near Cascade, N. H. The lagoon will hold sulfite liquor. A court order had required Brown (Berlin, N. H.), International Paper Co. (Livermore, Me.), and Oxford Paper Co. (Rumford, Me.) to re-



## Arsenal in Readiness

THE ARMY CHEMICAL CORPS has a midsize "Edgewood Arsenal" in Germany — the Hanau Chemical Corps Depot. The major Chemical Corps depot in Germany, its main job is demilitarizing captured German equipment. Getting rid of poison gas is one example of its functions.

The depot was an old German chem-

ical warfare dump. Minor testing in its Laboratory Division is continuing under U.S. Army direction.

Last week Chemical Corps officers told CW the Army will hold on to it. It is keeping it in readiness for any eventuality. The depot has housing and work areas to hold a battalion or more of military or civilian workers.

duce the amount of sulfite discharged into the Andruscoggin River during the summer. As a consequence the three companies had formerly curtailed operations during that period; building the lagoon is one answer to the problem.

Further news is that Brown will spend about \$10 million in the next two years on expansion. Most of the capital—about \$7 million—will be spent on increasing output at the Berlin (N.H.) mills. President Laurence F. Whittemore, on disclosing the expansion program, says Brown's gross sales this year will hit an all-time peak of \$70 million.

**Gulf Oil:** Construction is now under way on Gulf's \$1 million research center in Harmarville (near Pittsburgh, Pa.). Center will house 33 labs, as well as offices and chemical storage rooms. Under present scheduling, the project will be completed in about a year.

**Olin Industries:** Olin Products Co., Inc., has been formed to handle the distribution of Olin cellophane in the packaging field. The new firm will set up temporary headquarters in New

York, will operate as a subsidiary of the Ecusta Paper Co., which in turn is a subsidiary of Olin Industries, Inc. Cellophane will come from Olin's 33 million lb.-per-year plant which will be in production in September.

## KEY CHANGES . . .

**S. B. Coolidge, Jr.:** From vice president and director of auxiliaries, Sherwin Williams, to deputy assistant administrator, Metals and Minerals Bureau, NPA.

**Gordon Brown:** To president, Society of the Plastics Industry.

**George H. Law:** To director of research, Carbide and Carbon Chemicals Co.

**Franklin Johnston:** To assistant director of research, Carbide and Carbon Chemicals Co.

**Frank L. Cohen:** From assistant to the vice president for production to director of production, Merck & Co.

**W. P. Willis:** From manager, Los Angeles branch, to plant manager, Santa Clara, Calif., plant, Monsanto.

**P. S. Williams:** From manager of

manufacturing to vice president, California Spray-Chemical Co.

**Glen E. Wilson:** From employee relations department, B. F. Goodrich Co., to director of employee relations, B. F. Goodrich Chemical Co.

**W. W. Fischer:** To sales manager, Hardesty & Co.

**John R. Coleman:** To assistant superintendent, Film Emulsion Coating Division, Eastman Kodak Co. plant at Kodak Park.

**Lester C. Faulkenberry:** To assistant superintendent, Film Emulsion Coating Division, Eastman Kodak, at Kodak Park.

**F. B. Menger:** From general production manager to associate director of research, Armstrong Cork.

**S. Philip Marcus:** From assistant manager, South Charleston, W. Va., plant, to assistant production manager, Westvaco Chemical Division.

**Gabriel J. Ticoulat:** To deputy assistant administrator of the Chemical, Rubber and Forest Products Bureau, NPA.

**R. E. Greenfield:** From general superintendent to vice president, A. E. Staley Co.

**Ralph C. Tallman:** To director of research for Lion Oil Co.

**L. H. Souder:** To executive vice president, National Foam System.

**Ralph E. Knight:** To vice president, Kaiser Magnesium and Kaiser Bauxite Cos.

**Edward P. Aikman:** From manager, laboratory research, General Chemical Division, to general manager, Nichols Chemical Co. Ltd.

**Keith L. Pfundstein:** To manager, agricultural engineering, Technical Service Division, Ethyl Research Laboratories.

**K. C. Rule:** From assistant production manager to staff assistant to operating vice president, Westvaco.

**Robert J. Delargey:** From assistant general manager, Grove Regulator Co., to staff assistant to operating vice president, Westvaco.

**Charles E. Dutches:** From medical director to vice president, Schenley Laboratories.

**Arthur F. Gormley:** From sales manager to vice president in charge of sales, Schenley Laboratories.

**Sidney N. Sadoff:** From chief engineer to vice president, Schenley Laboratories.

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## Drums — "Hard to Beat"

The same Continental fibre drums that serve industry so well are giving an equally good accounting of themselves in military service.

Continental drums give extra protection to dangerous, expensive or hard-to-handle articles for shipment anywhere. Their light tare weight cuts shipping costs. They load compactly and ride safely. The closures are tight and strong, but easy to open and close.

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1. The famous Continental LEVERPAK drum with its unique lever-locking device gives maximum protection under hard usage. 12- to 75-gallon sizes.
2. Continental FIBERPAK drum... a rigid, all-fibre container in  $\frac{3}{4}$ - to 67-gallon sizes.
3. Continental STAPAK drum. Has fibre body with metal top and bottom. Supplied in 2- to 35-gallon sizes.
4. Continental UPAK drum. Custom-made for the shipment of rolled materials.

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# RESEARCH . . .

## Sweet Prospect

Good quality paper from sugar cane bagasse\* is the word this week from research engineers at Louisiana State University. Pilot production has been encouraging, but full-scale plant tests are needed to determine the economic feasibility of commercial operation.

After six years of work in the field, Paul M. Horton and Arthur Keller of LSU's department of chemical engineering have developed a process that converts about 27% of raw bagasse to high-grade paper fiber. Although their experimental mill clips along at a ton-an-hour pace, certain important considerations need further scrutiny before the process is ready for commercial exploitation.

Storage quality of the fiber, power data, and sterilizing methods require additional study. Chemical aspects will also come in for a good deal of play. The kraft process is too severe for bagasse fiber, but there is a good chance that milder waste chemicals will do the job. A Southern paper manufacturer has offered to run the necessary tests when enough fiber is available from the university's pilot mill.

**Saving a Million:** Raw bagasse today is used chiefly for fuel. Other money-making outlets are in the manufacture of furfural (CIW, May 12), building board, and as animal litter. Even so, over a million tons of bagasse go to waste each year. With the LSU process, three tons of fiber (worth approximately \$14 a ton) could be made from ten tons of bagasse. Not a bad bargain for Louisiana sugar cane growers.

Bagasse utilization has stumped researchers for more years than most can remember. From time to time, encouraging results have been reported. But process economics was always the big question. This time, LSU's researchers may have one of the answers.

## Hemp To Modernize

This week five scientists from Armour Research Foundation of Illinois Institute of Technology will begin field research work on the hemp industry at the Monte Verde plantation in Costa Rica. The RFC sponsored project aims to boost production and alleviate possible shortages of Manila hemp. Production techniques and machinery are ticketed for a thorough revamping.

\* Residue after juice removal.

Waste product utilization is another phase to be studied.

Manila hemp is somewhat of a misnomer. Actually the fiber is derived from the abaca plant—a first cousin of the banana tree and not a true hemp. Monte Verda and other Central American plantations are operated for the RFC by the United Fruit Co. The project, to run for about a year, will be directed by Norton F. Gurley.

**Sponge Blowing:** Samples of Ansul Blo, a new bicarbonate-type sponge rubber blowing agent, may be had from Industrial Chemicals Division, Ansul Chemical Co. Preliminary tests indicate that one part of the product does the job of twice the amount of sodium bicarbonate. The material resists caking, is free flowing, non-toxic, non-discoloring, and odorless. Elimination of premature blow is an added feature reported by the manufacturer.

**Coal Dust Binder:** Spent sulfite liquor, bane of the Wisconsin pulp industry, is being tested as a binder for powdered coal. Successful use of coal briquettes in road-binder applications, developed by the University of Wyoming's Natural Resources Research Institute under a grant from Hoberg Paper Mills, Green Bay, Wis., sparked the idea. Previously asphalt has been used as the binder in briquetting operations, but the hope is that sulfite liquor can replace at least a portion of asphalt to make better briquettes. Project is under the aegis of the Sulfite Paper Manufacturers Research League, Inc.

**Big Squeeze:** New testing instrument developed by Socony-Vacuum researchers can exert measurable pressures up to 250 psi. In addition to its value in lubricant studies, the instrument has important potentialities in determining breaking point of solid films.

**Virus Exchange:** Researchers at Columbia University's College of Physicians and surgeons have succeeded in separating virus from host fluid by ion exchange. Infected chick embryo fluid was passed through columns of a cation exchange resin adjusted to proper pH with acetate buffer; columns were then eluted with saline solution. One passage through the resin removed up to 98% of the virus. Exchange of sodium for virus during elution was indicated by the small amount of sodium coming through prior to recovery of nearly all of the virus.

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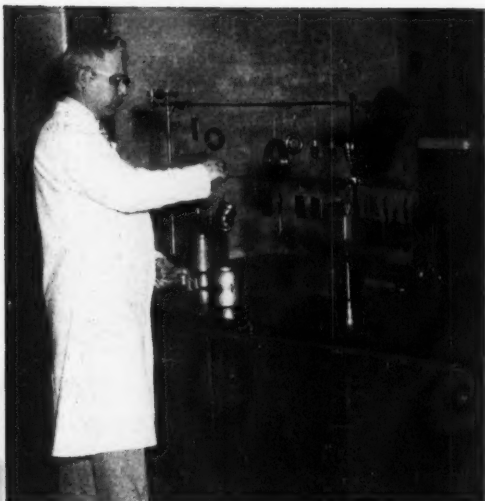
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**1** TESTING (hot-melt compound here) is one activity. But major emphasis is on product research, development.



**2** WEIGHING OUT INGREDIENTS in paint mixing section is first step in probing new formulation.

## RESEARCH . . . . .

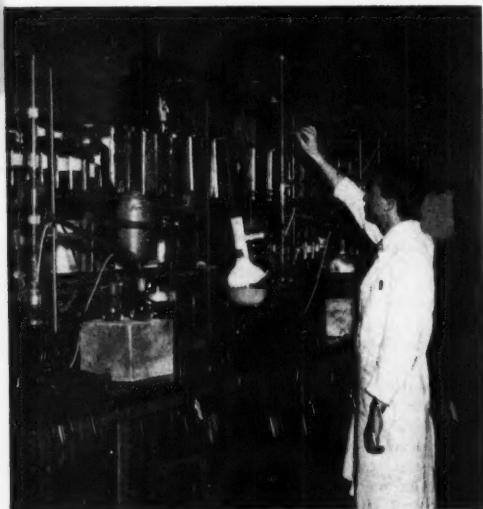
### Army Research Insures Fighting Trim

The Army's Paint and Chemical Laboratory, Aberdeen Proving Ground, Md., chemical eyes of the Ordnance Department has its work cut out in the development of scores of practical chemical products: pickling inhibitors, metal cleaners, paint strippers, organic

coatings, pre-paint preparations, brake fluids, antifreezes, corrosion inhibitors, strippable films—in fact, everything chemical needed to keep Ordnance in fighting trim.

Headed up by Charles F. Pickett—prominent for many years in both in-

dustrial and government chemical work—the research installation is staffed by 46 civilians and 12 enlisted specialists. In addition to its accustomed responsibilities, the group serves as the chemical service arm for the Proving Grounds and takes on special



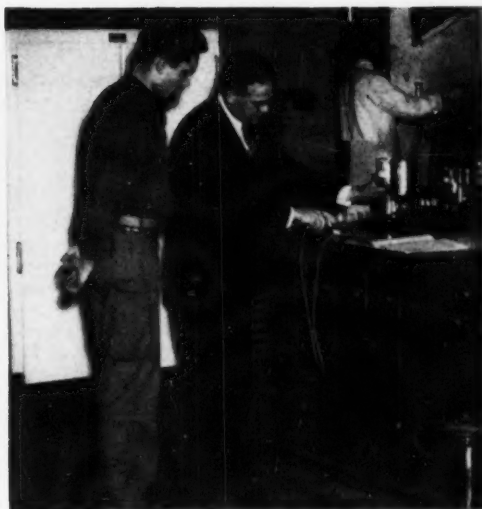
**5** CHEMIST reading distillation thermometer, prepares pure sample of antifreeze ingredient.



**6** FREEZE-POINT determination is acid test. Antifreeze developed here is now standard for arctic operation.



**3** FLOW RATE through small opening, checked in climatic control room, is practical measure of viscosity.



**4** FILM THICKNESS also gets a look. Pickett instructs G.I. specialist in use of testing instrument.

armed forces projects as requested.

A major share of Paint and Chemical's efforts are translated into specifications for the variety of products Ordnance buys. Top quality and performance are the goals, but in many cases the usual road to this objective is inaccessible. Remembering the cut-off of vital raw material imports early in World War II, Pickett and his researchers today are busy seeking ways to by-pass strategic materials in their

military product needs.

But the fruits of this ambitious program are not confined to Ordnance alone. Aberdeen's versatile research outfit is the qualifying agency on strippable films and hot-dip compounds for the Army, Navy, and Air Force. Moreover, its work on pre-paint treatment is the basis for uniform service standards.

The Paint and Chemical Laboratory was organized in 1943, when automo-

tile operations were transferred from the Quartermaster Corps to the Ordnance Department. From a modest start in two small laboratories, the outfit has grown into a sizable, yet compact, research unit. Its new facilities (all under one roof) are spotless, well equipped, and highly functional; several items of special equipment were designed by Pickett and his crew to expedite operations, are unique in their field.



**7** VISCOSITY must come up to par to qualify new product. Equally important is . . .



**8** SURFACE TENSION. Tensiometer reading is one more hurdle product must clear before leaving laboratory.

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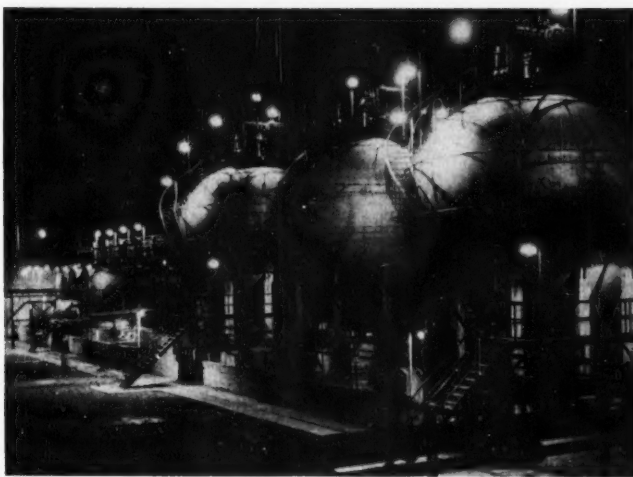


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# PRODUCTION . . .



**BUTADIENE AT COPOLYMER:** Tanks remain full, less butylene is charged, as new catalyst provides . . .

## Butadiene Bonus

New pelleted calcium nickle phosphate catalyst ups yield of butadiene from n-butylenes from present 70% to 92%.

Production from present butadiene plants is raised about 10% without any further change; minor modification can produce up to a 50% increase.

Last but not least: Lower-cost butadiene is produced.

This week such petroleum butadiene producers as Phillips, Humble, Polymer Corp. and Rubber Reserve were beginning to reap the first of a long harvest of juicy dividends in the form of increased conversions of n-butylenes to butadiene at a lower cost. Investment required: Substitution of a pelleted calcium-nickel phosphate catalyst\* for the heretofore standard catalyst (72.4 MgO, 18.4 Fe<sub>2</sub>O<sub>3</sub>, 4.6 CuO, 4.6 K<sub>2</sub>O). Several hundred thousand pounds of the new catalyst have already been shipped and a like quantity is scheduled for fall delivery.

**Dividend:** About 92% of the n-butylenes will be converted to butadiene instead of the usual 70% by the new catalyst, which was developed and produced in the form of  $\frac{3}{16}$ " x  $\frac{3}{16}$ " pellets by Dow Chemical Co. But conversions are not the whole story. Suffice it to say that about a 10% increase in butadiene production can be obtained without plant changes; a 50% increase by strengthening the grates

supporting the catalyst bed in the dehydrogenation unit and charging the increased butylene.

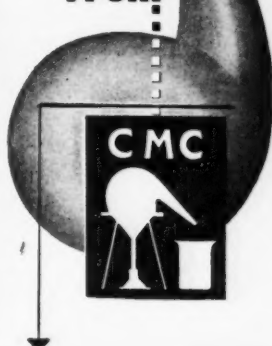
When the grates are strengthened and the velocity of the steam and feed stock through the catalyst beds increased, a 92% yield is obtained at a better than 35% conversion per pass. The existing waste heat boiler, steam quenching tower and hydrocarbon gas compression equipment will be adequate as the Dow Type B catalyst produces considerably less non-condensable or fuel gas value than the presently used catalyst. However, the increased production of butadiene will necessitate an increase in the butylene recycle and butadiene purification plant.

The increased conversions of butylenes to butadiene are such that the increased production can be obtained without any change in the butylene feed preparation plant. Reason: More butadiene is obtained from each pound of butylene charged.

\* U.S.P. 2,442,319-20, 2,456,367-8, 2,542,813.

## CHEMICALS

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The value of ammonia bicarb in baking depends upon its volatilization by heat and the resultant aeration by the evolved gases. There is no residue or taint. The bicarbonate gives a fine, even aeration.

##### Manufacture of Pharmaceuticals

Ammonium bicarbonate is used in dispensing and in certain pharmaceuticals.

##### Other Applications

These include use in the preparation of ammonia salts, as inflators for rubber and as neutralizers for sulphate of ammonia prepared at gasworks and coke ovens.

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## PRODUCTION . . . . .

butadiene can be upped merely by substitution of the new catalyst, optimum benefits are obtained by re-balancing the size of the equipment for butadiene recovery. Thus substitution of the catalyst should be accompanied by strengthening the grates supporting the catalyst and additional steam superheating and feed superheating capacity. But no additions need be made to the feed preparation section, the waste heat boiler, water quenching tower and vapor recovery equipment to get a much higher production rate from the existing plant.

**Less Alcohol:** The increased production of butadiene that can be obtained by use of the new catalyst and minor alterations of existing petroleum butadiene facilities may very well mean a cutback in ethyl alcohol required by the synthetic rubber industry. This in turn will mean cheaper synthetic rubber.

**Hook-On Power Factor Meter:** The Meter and Instrument Divisions of General Electric have developed a hook-on power factor meter. With the new meter, power factor can be determined without cutting conductors or interrupting service.

Readings are accurate to within 0.05 power factor over a frequency range of 50 to 90 cycles.

**Impact Breaker:** Good control of the breaking operation to produce a highly uniform cubical aggregate is provided by the Impact Master, developed by Construction Equipment Div. of Pettibone-Mulliken Corp. The new unit consists of an outer steel housing which forms a breaking chamber over two rotor hammer members.

Each rotor has three rigidly supported hammers and both rotate in the same direction at 550 to 1000 rpm.

**Fluorocarbon-Metal Seal:** Teflon Products Div., United States Gasket Co., has produced a true hermetic seal between fluorocarbon resins and any one of several metals. Preliminary evaluation indicates that the seal gradually changes from a pure fluorocarbon resin to a pure metal.

These seals can be made to withstand vibration, shock, high and low ambient temperature limits and thermal shock.

**Vacuum Flasher:** The world's largest vacuum flasher, 55,000 barrels per day, will go on stream at the Richmond refinery of Standard Oil Co. of

California. Asphalt which comes off as a bottoms product will be charged to vis-breakers to produce gasoline and high-quality fuel oil. The main tower will be about 100' tall and 27' in diameter.

**Power Factor Visualizer:** A simple explanation of the use of capacitors in raising the power factor in a plant is provided by a new power factor visualizer available from Westinghouse Electric Corp.

**Capacitor:** General Electric's development of a new low-temperature pyranol, a compounded chlorinated diphenyl, has permitted the production of a capacitor which has no loss in capacitance down to -32 C.

**Mixer:** The new Simplex Dispersator, manufactured by Premier Mill Corp., is said to provide more rapid emulsification and dispersion than high-speed propellers. The Dispersator consists of a cylinder with vertical slots which rotates at high speeds. Centrifugal force forces the liquid outward through the slots. This produces two effects: (1) the product is sheared at high speed as it passes through the slots; (2) the columns of liquid emerging from the slots are further sheared when they contact the slower moving mass of liquid in the vessel.

**Extruded Teflon:** Polymer Corp. has reduced the price of extruded Teflon by as much as 20% for some shapes as a result of the development of an improved process for extruding Teflon rod and tubing.

**New Catalyst:** The sixth experimental run at the Coal-Hydrogenation Demonstration Plant of the Bureau of Mines at Louisiana, Mo. has been completed successfully with an iron instead of a tin-based catalyst. No strategic materials were used in the manufacture of the catalyst.

**Corrosion:** Recently when a cat cracker was shut down at the Baytown, Texas, refinery of Humble Oil & Refining Co. it was found that a crack had developed in the silicon-killed steel shell of the reactor. Subsequent examination showed the steel had graphitized. Gamma ray examination indicated additional weak spots. The cracker had operated at 950 F and had been in service for about eight years. Studies are now under way to determine the cause of this unusual case of graphitization.

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Clear amber liquid. 25% active. 3% sulfate. Excellent for compounding. Can be tailored to meet your particular requirements.

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Wherever you see the Harshaw trademark, whether on tank car, package or laboratory bottle, remember it identifies chemicals that will help do a better job.

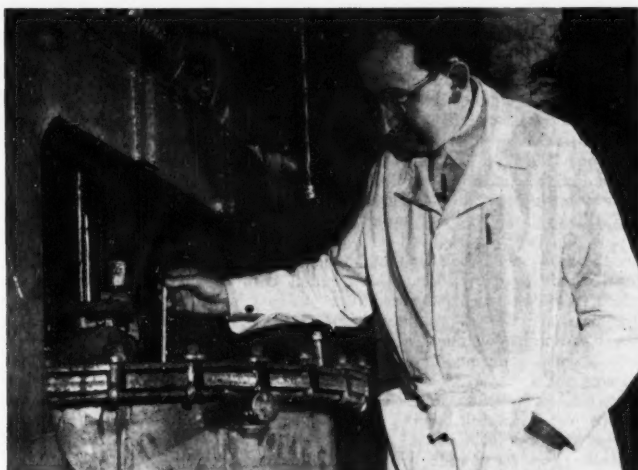
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# SPECIALTIES....



SOL BOYK: Growing boys and an expanding germicide.

## Domestic Push for PCMX

Over 30 U.S. manufacturers of germicidal products are now incorporating *para*-chloro-*meta*-xylenol in their formulas.

This germicide, widely used in parts of Europe, is now being produced domestically in a superior grade.

Advantages of PCMX: high phenol coefficient, non-toxicity, non-corrosiveness, and relatively low cost.

If scholarly Sol Boyk did not have two sons (ages 5 and 8) with voracious appetites, chemistry students at Purdue University would probably have one more enthusiastic teacher. Various pharmaceutical, cosmetic and sanitary chemical firms in the U.S., however, might not be incorporating Ottasept in such products as soaps, fungicides, shaving creams, vaginal jellies and medicinals.

Ottasept is the trade name for *para*-chloro-*meta*-xylenol (PCMX), produced by Ottawa Chemical Co., a small Toledo, O., chemical manufacturer. European companies have had success with this germicide PCMX in a dozen or more preparations, including Dettol, a general antiseptic widely used in Great Britain. But in this country, it has not created much of a stir until Boyk began to tell manufacturers of the virtues of his particular product. Now some 30 producers of germicidal preparations are using it, and others are testing it for inclusion

in their formulas. Moreover, recent experiments indicate that it is an extremely effective anti-odorant, and one big name in the personal deodorant business is giving it a close look.

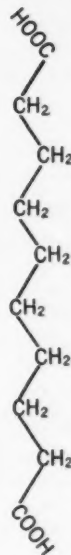
Current PCMX activity can be traced back to the summer of 1948 when Boyk, on sabbatical leave from Purdue, decided that his family loved to eat even more than he loved to teach. With a background of ten years as a chemistry teacher, he purchased the then defunct Ottawa Chemical, and began making hormones. So optimistic was he of his future in the business world, he bought a house the same day he picked up the deed on the plant.

**No Objections:** Products for the pharmaceutical and cosmetological trade were natural additions, so he endeavored to make PCMX without the objectionable odor and color that had militated against use of the British product in this country. (An additional—and possibly more important—factor in the wider popularity of PCMX abroad and relative non-use

\* Barrett Division, Allied Chemical & Dye Corp., also has produced PCMX, but is not making it now.

## SEBACIC ACID

FOR  
"BUILT-IN FLEXIBILITY"



## HARCHEM PLASTICIZERS

\*HARFLEX 500  
DICAPRYL SEBACATE  
DICAPRYL ADIPATE  
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DIBUTYL SEBACATE  
DI-ISO-OCTYL SEBACATE  
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DIBENZYL SEBACATE  
DIBENZYL ADIPATE  
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\*\*BUTYL BENZYL SEBACATE  
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from huge under-  
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hydro-electric power  
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greatest mileage of  
flowing streams in the  
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integrated with steam  
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work-willing Ameri-  
can men and women  
of farm background  
—quick to learn, loyal  
and highly produc-  
tive—provide the  
principal factor in  
Nebraska's claim to  
low-cost, trouble-free  
operation.

All this in a state free  
from debt, with no in-  
come tax but with a  
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**NEBRASKA RESOURCES DIVISION  
STATE CAPITOL LINCOLN**

here: Germicidal preparations based on somewhat more toxic phenolics have been acceptable here, but have met resistance in England.) Boyk's synthesis yields a white crystalline product which is non-toxic, non-corrosive, easily miscible with many materials, and has a high phenol coefficient (40-80 by Rideal-Walker test method).

One of the first firms to utilize the non-toxic, non-irritant qualities of PCMX was the George H. Rundle Co., Piqua, O., which introduced its Pim to the skin medication market this April. This company became interested in PCMX when it learned that the material could be introduced into the blood stream without toxic or irritating effects, an important property in creams that cover open skin areas. The Pim formulation containing Ottasept was the result, and it is expected to go national soon.

Other proprietary products in which Ottasept has been incorporated include Aseptico, a salve (Aseptico Laboratories, Rochester, N.Y.); No-Germ Soap (Chicago); Master Antiseptic Liquid Soap (Lincoln Research, Toledo); Lygenes vaginal suppositories and Lygenes vaginal jelly (Special Formula Corp., N.Y.C.); Amphyll, (Lehn & Fink); Torine, athlete's foot remedy (Torine Co., New Rochelle, N.Y.).

**Easy to Compound:** Ottasept is a neutral material, stable in acid, neutral and alkaline media. It is most easily compounded in the form of an alcoholic solution, but aqueous solutions are readily compatible if a little liquid soap is present. Oil systems may have the alcoholic solution added directly. It mixes easily with lanolin even to 30% strength.

It is readily soluble in Spans and Tweens (Atlas Powder) and the Carbowaxes (Carbide and Carbon), and in other ester, ether and amine bases. It is carried without difficulty by olive oil, corn oil, pine oil and in general, by oxygenated organic compounds.

Boyk is quite satisfied with the fine acceptance of Ottasept so far, and feels that its relatively low cost as an antiseptic ingredient in addition to its other worthy qualities will open up uses for mass antisepsis such as is required by the dairy and beverage industries.

In addition to hormones and Ottasept, Ottawa Chemical is also making saligenin (ortho-hydroxybenzyl alcohol), a non-toxic topical antiseptic for mucous membranes, and Ottacut, a non-petroleum synthetic coolant for metal working. These activities keep Boyk busy these days, but he still loves to teach and intends to return to it at some undetermined date (when he can afford it).

## Specialist in Outlet Cultivation

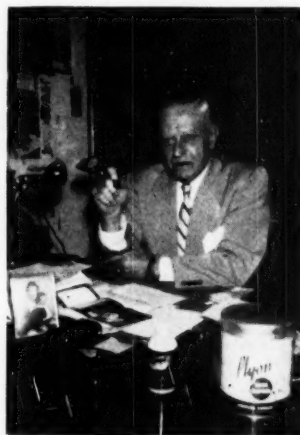
An Oklahoma automotive specialties outfit that started with a car polish less than three years ago, has built its line up to four items handled by 500 distributors, will chalk up retail sales in the \$2 million-range this year. Keys to success: silicones; distributor education; demonstration sample bottles in each case shipped.

When Goodenow-Morley Co. totals sales of its Plasticote silicone polish for the fiscal year ending this month, it figures that the 1949-1950 sales of slightly more than one million pints (\$1.25) and 5,000 gallons (\$9.00) will be surpassed by 50%. That's pretty good going for a company that began as the summer enterprise of two Yale students three years ago.

Even that doesn't tell the complete story, for there are three other numbers in its line, all sold under the Pylon trade-mark: Hand Cleaner, Protective Creme, and Champion Q-X. The latter is an undersurface lubricant which the company has just obtained a license to manufacture and distribute in the automotive field. It has been established for aircraft and

industrial engines; will be retailed (85¢ per pint) as an additive in auto crankcase lubrication.

**Like Son, Like Father:** This Oklahoma City company got started be-



**EARLE GOODENOW:** He explained the difference.

# A Bedtime Story for Very Junior Chemists



Once upon a time, there lived a sad little Sodium CarboxyMethylCellulose. He worked very hard extending Soaps and improving Synthetics. But all the Soaps called him a "war baby." And he wasn't allowed to associate with any but Low Grade Synthetic Detergents.



So he ran away. And arrived one day on the Doorstep of a Corporation in Wyandotte, Michigan. The Corporation picked him up and handed him over to the Research and Development Division. Well, you should see what they did for this little "war baby"!

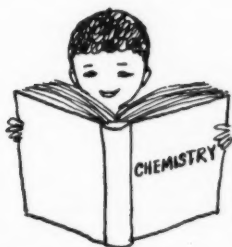


They changed his length and Molecular Structure. They Manufactured him by a brand new Process. They let him associate with High Grade Synthetic Detergents. And then they gave him a name . . . "Carbose\*."

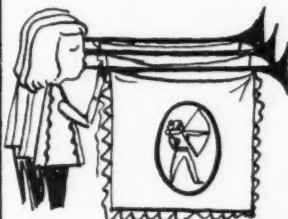
\*Reg. U. S. Pat. Off.



Carbose might have been very happy—but the Soaps still put on airs. "No matter how hard you and those Synthetics try," the Soaps told him, "nothing cleans as well as Soap."



But he worked hard just the same. He practiced Soil Removing and Whiteness Retaining and all the other things a detergency promoter should. And one great day, the Research and Development Division called the Soaps and Synthetics together and read a Proclamation:



"Synthetic Detergent products can be formulated with Carbose which will yield detergency equal to that of High Grade Soaps under conditions favorable to Soap, and far superior to High Grade Soaps under conditions unfavorable to Soap."



"Carbose!" Why, they were talking about him! Carbose was a hero! Yes, it was a great triumph for him . . . but Carbose went on . . . had a large family and did many more things . . . in textiles, paper, paints, ceramics, petroleum . . . and even in soap!

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## SPECIALTIES . . . . .

cause Earle A. Goodenow, one of the partners, sent his son to Yale. In the summer of 1948, young Goodenow and H. T. Morley, Jr., the other partner, began Oklahoma sales of Plasticote, a formula for a non-wax-containing car polish that some Yale chemical students had developed and were manufacturing for a small Eastern market. The boys were so successful during their vacation that the elder Goodenow became interested in the polish business, made a survey of the polish field. He decided that the American public's education as far as car polishes were concerned was sadly lacking, thought he could do something about it—and sell a lot of polish at the same time.

He induced Morley to go into business with him, and secured the Western two-thirds of the country as a franchise from the parent company, Bulseye Corp., New Haven. Then began the campaign of education that has paid off handsomely.

Biggest sales-producer is a sheet entitled "What's the Difference" which is supplied to distributors. This was Goodenow's answer to the question "What's the difference?" that distributors kept throwing at him; in

it, he explains the difference between his product and other polishes on the market. In addition to keeping distributors supplied with these sheets as sales began to grow, the company supplied advertising display cards and banners. Another unique—and potent—sales-getting—gimmick: In each case of 24 pints shipped, there are included five 2-oz. demonstration sample bottles. This helped launch Plasticote, and is still being used to maintain sales and distributorships, now a lusty 500 in number.

**Formula Change:** Last year, Goodenow-Morley got in early on the swing to silicones. Like other polish manufacturers, it had a little trouble at first, but with the help of a New York consulting firm, straightened the formulation out. Its product is an emulsion which, after a very easy polish job on a car, hardens within 48 hours to give long-lasting protection from oxidation of the painted surface.

Originally all manufacturing was done at New Haven, but since mid-1949 Plasticote has been manufactured in Oklahoma City. Currently, the company has orders on hand for about 2,500 cases, and has just put its factory on overtime to fill orders.

### FAIR TRADE PRICE TOPPLING

ARTICLE	FAIR TRADE PRICE	R. H. MACY'S PRICE
All detergent powder	2.49	2.34
Arctic deodorant	.43	.39
Bayer's Aspirin, 100 Tablets	.59	.54
Biscuits	.49	.46
Go-Goat, (Johnson)—gal	2.38	2.19
Griffin lotion shoe cream	.25	.23
Griffin shoe polish	.10	.09
Hinds Honey & Almond lotion	.89	.84
Opus toothpaste	.47	.44
Kaigle (Shoreline-Williams) — gal	7.50	7.19
Keweenaw (Shoreline-Williams) — gal	3.50	3.39
Laverta mouth wash	.45	.42
Listerine mouth wash	.79	.74
Lysol	.90	.82
Lustra Creme shampoo	1.00	.94
Mystic hand cream	1.29	1.21
Women's skin brace	.59	.54
Mum deodorant	.39	.37

SIX PER CENT cut heralds . . . . .

### Fair Trade Price War

First large-scale effects of the Supreme Court decision invalidating non-signer clauses in state "fair trade" price laws (CW, June 2, 1951) were seen in New York City last week when R. H. Macy, the world's largest department store, slashed 6% off the prices of fair trade items, including drug, cosmetic and household chemical specialties. This is in line with the store's stated policy of selling products at 6% less than merchandise of comparable quality sold elsewhere.

Other department stores immed-

iately began reducing prices to meet Macy's new schedule, and a full-fledged price war was raging. Consumers had a holiday, but manufacturers whose products were being "footballed" viewed the situation with less enthusiasm.

What action would be taken by manufacturers was not clear. Macy took the position that it could sell goods made in New York at below fair trade prices, reasoning that any New York manufacturer selling nationally was engaged in interstate commerce, and hence the Supreme Court decision relating to interstate commerce applied. A contrary view was that a company within a state injured by price cutting of a non-signer within that state could enjoin him from such price cutting.

In New Jersey, Hoffmann-LaRoche, Nutley drug manufacturer, secured an interlocutory injunction against Weissbard Brothers, operator of a group of cut-rate drug stores, preventing sale of its products below fair trade prices until the case is settled in the courts. Hoffmann-LaRoche argues that although Weissbard bought the items from a New York wholesaler, and although its products are sold nationally, it is located in the state where the retailer is engaged in a local business, and hence the Supreme Court decision does not affect its

fair trade rights in the state.

Also in New Jersey, Kings Super Markets, a food chain, cut the prices of Johnson's Glo-Coat wax and Colgate tooth paste. No immediate action was planned by Colgate-Palmolive-Peet although both the food stores and the manufacturer are in the same state.

**Lotion Shampoo:** The 23 Eastern and Midwestern states which have 60% of the national population will be the prime market for White Rain, new lotion shampoo of Toni Co. By mid-June it will be sold in drug, department and variety stores in this area. This follows successful test-marketing in Denver, Colo. and Akron, O. The product is thicker than a liquid, but thinner than a cream. It pours and spreads easily, lathers well even in hard water because of its synthetic detergent base. Three sizes are available: 1½-oz., 3½-oz. and 7-oz. bottles for 30¢, 60¢ and \$1, respectively.

**New Location:** Shur-Gloss Mfg. Co., Chicago manufacturer of automotive specialty detergents, has recently purchased an 18,000 sq. ft. building at a new location in that city.

**Aerosol Deodorants:** Key to the composition of the active principle in some aerosol deodorants may be revealed in U.S. Patent 2,544,093, issued to Kilgore Chemicals which has a deodorant for aerosols trade-named Metazene. The patent describes use of esters of methacrylic acid and derivatives in aerosols as atmospheric deodorants. They are claimed to work by destroying odors instead of masking them. Lauryl methacrylate appears to be the material of choice.

**Silicone Purchase:** Speco, Inc., Cleveland, has purchased all assets of Silicone Products of America, also Cleveland, one of the early manufacturers of silicone-base polishes and water-proofing liquids.

**Army Wax Maker:** The Thomas Co. (Minneapolis) has developed a wax for corrosion preventive coating of food handling machinery and equipment which meets army specification Mil-C-10382.

#### PICTURES IN THIS ISSUE

p. 1—Copolymer Corp.; pp. 18 & 19

—Ordnance Department, U. S. Army.

## ORGANIC PEROXIDES

### LUPERSOL\*DDM

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IN DIMETHYL PHTHALATE

WATER WHITE LIQUID

11% ACTIVE OXYGEN

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CATALYST FOR  
POLYESTER RESINS

TECHNICAL DATA AND SAMPLES  
AVAILABLE UPON REQUEST

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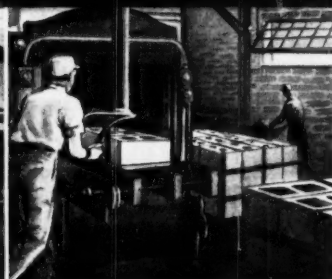
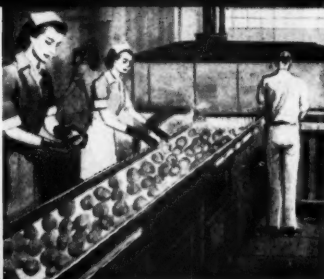
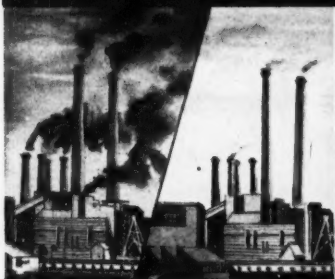
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# D-40

## is more than a detergent

The detergent base of many industrial and household cleaning compounds, Oronite D-40 has dozens of other uses. Its versatility and high quality are characteristic of the chemicals made by Oronite—a dependable source of basic ingredients for better products.



### THREE TYPICAL INDUSTRIAL USES OF ORONITE D-40:

#### 1 SMOG REDUCTION

Use of D-40 in smog control systems, removes hydrocarbons from stack gases and prevents the formation of undesirable emulsions in the "scrubbing" solution. In actual practice this process has reduced exhaust smoke by as much as 90%, which offers a potential control of smog conditions in industrial areas.

#### 2 AGRICULTURE

In addition to its value in washing many fruits and vegetables, Oronite D-40 is a tremendous aid in peeling these foods during canning and packing operations. Two distinct advantages are obtained; 1) immersion time and the concentration of alkali can be reduced and 2) the fruits and vegetables retain better color.

#### 3 CEMENT

The use of Oronite D-40 in the production of cement products, such as building blocks, provides many distinct advantages. The texture of the finished product is improved, water requirements reduced, plasticity and workability are better and "stripping" from molds or forms is facilitated. In addition, the abrasive wear on mixing equipment is greatly reduced. All these contributions help cut production costs.

### A partial list of other Oronite Chemicals

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Detergent Slurry  
Detergent D-60  
Wetting Agents  
Lubricating Oil Additives  
Cresylic Acids

Gas Odorants  
Polybutenes  
Sodium Sulfonates  
Purified Sulfonate  
Naphthenic Acids  
Phthalic Anhydride

Ortho Xylene  
Para Xylene  
Xylol  
Aliphatic Acid  
Hydroformer Catalyst

*If you want more detailed information about D-40 or other Oronite Surface Active Agents, just write us and we'll be glad to send it to you.*

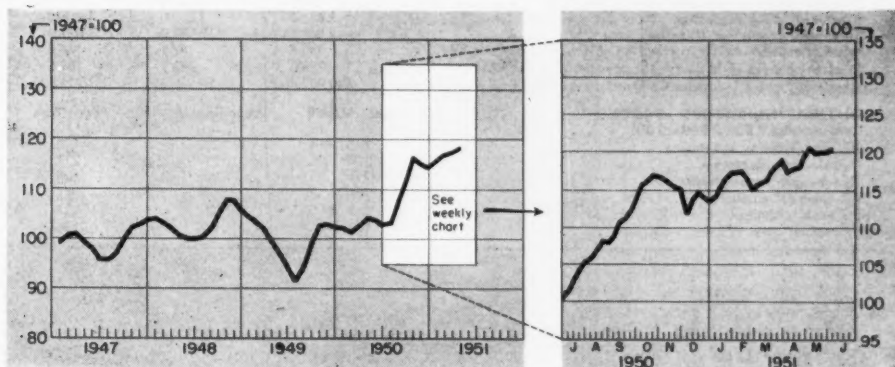
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MERCANTILE SECURITIES BLDG., DALLAS, TEXAS

2207

# CHEMICAL MARKETS....



CHEMICAL INDUSTRIES OUTPUT INDEX — Basis: Total Man-Hours Worked in Selected Chemical Industries

Most notable feature of the chemical market this week is the piling up of imported chemicals in bonded warehouses. Reason: Importers are waiting for lower tariffs under the Torquay agreement. Jammed warehouses can be expected for at least the next few months, while agreements with different countries go into effect.

Chemical resale continued quiet, as buyers and sellers interpreted market trends differently. The downward price movement is still noticeable, as supplies improve and inventories build up. Phenol in particular, showed an easier tone, resale averaging 56¢ a pound this week, compared with last week's 63¢. One large manufacturer is convinced that new production this year will enhance buyer opportunities later.

Nominations for dearest commodities of the week: soda ash and trisodium phosphate. Export trade sustained the market for solid caustic soda at 9¼-9½¢ a pound, with strong opposition from buyers and sellers beyond these limits.

Solvents continue sluggish, but prices are generally steady. Synthetic butanol and butyl acetate keep moderately active at 27¢ a pound, drums included; fermentation grade idles along at the recently posted levels of 28¢ a pound in tanks. Not-so-heavy demand from the paint industry contributed to the recent weakening in cellosolve, which has dipped from 45¢ several weeks ago to a price of 35¢ a pound today.

A smaller number of chemicals bucked the downward resale price path. Buyers found phthalic anhydride no better, as 60,000 pounds moved at 70¢ for future shipment. Aspirin developed a stronger position, moving from 68¢ to 75¢ a pound during the last week.

Behind the sodium cyanide price spurt to 35¢ a pound: Defense demand for case-hardening steel, coupled with embargo on material from Czechoslovakia, biggest supplier last year.

## MARKET LETTER

# MARKET LETTER

## WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
Chemical Industries Output Index (1947=100)	120.0	120.5	104.4
Bituminous Coal Production (Daily average, 1000 tons)	1,626.0	1,609.0	1,705.0
Steel ingot production (thousand tons)	2,063.0	2,053.0	1,931.0
Wholesale prices—chemicals and allied products (1926=100)	141.6	142.1	116.0
Stock price index of 14 chemical companies (Standard & Poor's Corp.)	233.0	232.5	194.6
Chemical Process Industries Construction Awards (Eng. News-Record)	\$49,402,000	\$4,538,000	\$1,221,000

## MONTHLY INDICATORS—PRODUCTION (Index 1935-1939=100)

	Latest Month	Preceding Month	Year Ago
All manufacturing and mining	222	222	190
Durable manufactures	275	277	222
Non-durable manufactures	199	199	180
All chemical products	297	292	252
Industrial chemicals	539	524	434
By product coke	177	176	170

Some jobbers, peering into the future, feel the present resale price tags on some chemicals are too low. An example: one jobber sees interest perking up in sodium bichromate, holds firmly to a 52¢ price for chromic acid, even while going prices are more like 45¢ a pound.

Much has been said about the hectic activity to make more sulfur, but the outlook for this year is a worsening shortage. That production is near today's peak capacity is pretty obvious. Although demand mounts daily, production in April of 419 thousand tons fell below March's output of 453.7 thousand tons.

Hoped-for relief from the pressing demands of European countries won't be answered by Italian sulfur. The handicap of an antiquated industry cannot be readily surmounted, and Italian exports this year are expected to be less than the 180,000 tons of 1950.

U.S. chemical output gaged by the CW index shows that for the first time since Korea, remarkable stability has been reached. For the fifth consecutive week, the index remains at 120. Resale prices in the meantime have been skidding closer to manufacturer's levels.

A strong comeback by plastics features production data just released by the Tariff Commission. Every major category shows a substantial gain, with the biggest upturn chalked up by vinyls (39.2 million pounds in March, 31.8 in February). The single use decline was in textile treatment with urea-melamine resins, a tell-tale reminder of the textile slump.

Plastics supplies are further improved by influx of cresylic acid from England. Over 1000 drums were unloaded this week in U.S. ports, a flow unaffected by the new tariff regulations, since the product has been and continues duty-free.

## SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending June 4, 1951

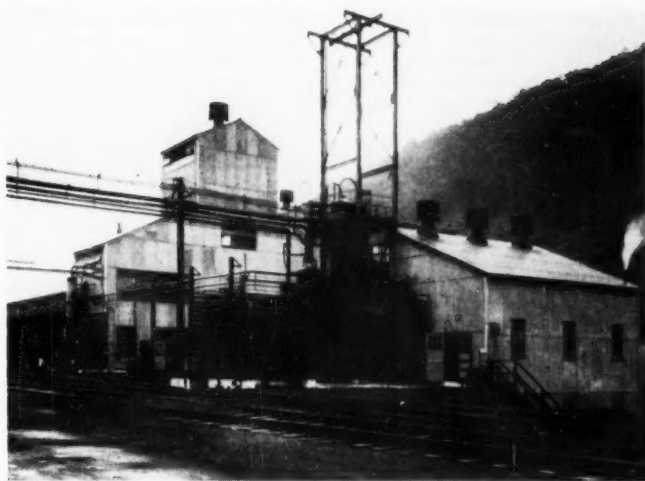
UP

None

DOWN

	Change	New Price		Change	New Price
Coconut Oil, crude, tanks, Pac.	\$ .0025	\$ .14	Ouricury Wax	\$ .02	\$ .91
Copra, Pac. ports, ton	187.50	187.50	Quicksilver, 76 lb. flask	2.00	210.00
Egg Albumen, flake, edible	.04	2.07	Sandalwood Oil, NF	.25	13.00
Linseed Oil, raw, tankcar	.005	.21	Tin	.03	1.36

All prices per pound unless quantity is stated



DuPont's CRYSTAL UREA PLANT: Production won't slow down though . . .

## European Urea Moves In

Stepped-up imports of urea from Europe bolster domestic supplies, knock resale prices from 15¢ to 8¢ a pound.

Expansion in plastics, fertilizer, and feed supplements insure long-term growth of urea demand.

Even a casual habitue frequenting the docks of a major U.S. port could not miss the increasing quantity of urea entering the country during the last few weeks. In the channels of chemical trade, the effects of this heightened activity could be noted by the steady decline in resale market price.

Only 2 months ago, sellers were asking, and spot buyers were paying, as much as 15¢ a pound. Today, resellers will be glad to settle for a firm offer of 8¢ a pound.

Shipments from Germany, the United Kingdom, and Norway have been entering the U.S. market in larger quantities since the first of the year. Today they comprise almost 15% of the U.S. production. In the resale market, which thrives on the gap between supply and demand, any narrowing of the difference has a corresponding effect on the price differential between resale price and producers' quotations.

One of the largest factors in the import market is the Norsk Hydro Sales Corporation, which currently is bringing in 350-400 tons a month of the Norwegian product, and says the demand is still greater than can be

filled. Major producers in the United Kingdom and Germany are contributing about as much to the stream of overseas supplies. Currently, the imported material is selling at \$135-140 a ton at the dock, but periodic trade reports persist that these prices may be shaded in some cases.

**U.S. Made:** This flurry of activity in urea is being watched with considerable interest but little alarm by the U.S. producers—two in number. Of the total annual production (around 110 thousand tons), it is estimated that E. I. duPont de Nemours & Co. makes something like 70 thousand tons and Solvay around 40 thousand. The price gyrations of imported and resale urea are not, of course, characteristic of producers' prices, pegged by the Office of Price Stabilization, in accordance with GCPR at close to \$110-115 a ton fob. plant in carloads.

For almost 17 years, DuPont was the sole U.S. producer of synthetic urea, operating the plant at Belle, W. Va. Since 1949, the Solvay Division of Allied Chemical & Dye Corp., has been an active producer at South Point, Ohio. Solvay's production is

marketed by the Barrett Division, another Allied subsidiary. The entrance of a second producer has been fully justified by the mushrooming demand for urea-formaldehyde plastics, and the assured markets for fertilizer and animal feed supplements.

**Anyone Else:** Other companies have been tempted at various times to enter the picture, especially those who are already in the business of making ammonia, and who could readily get carbon dioxide—say from fuel gases or from limestone.

The choice of plant site is of primary importance, requiring an abundant supply of raw materials and accessibility to the market. The proximity of the DuPont and Solvay plants can be taken as more than mere coincidence. Nearness to fertilizer outlets would be an important factor for any new producer, and might possibly favor a location closer to the central United States.

Success of the ammonia-carbon dioxide high-pressure process is a triumph of process engineering, depending on the development of suitable equipment to beat the plaguey corrosion problem. In many cases, corrosion difficulties require such expensive but necessary measures as silver linings to insure a high-purity product. It is not unlikely that more fertilizer grade urea could be made competitively from calcium cyanamide.

## Outbound Caustic

Each week, the supply of caustic soda has been improving and this week maintains the trend. Both manufacturers and resellers are in agreement on this recent development, and domestic consumers in the spot market are having their easiest time since Korea—and paying substantially less than in the first quarter of the year.

As U.S. supplies have eased, foreign sources find their buying position has improved considerably. Not only is the supply better, but most of these accounts have become considerably more prosperous in the past year by virtue of the extra revenue derived from their higher-priced exports.

**Overseas:** During 1950, almost 200 million pounds of solid caustic and 65 million pounds of liquid were exported. The big majority of solid shipments was destined for South America. Of this, Argentina accounted for nearly half, with 91 million pounds, followed by Mexico with 31 million pounds. Far Eastern requirements amounted to 38 million pounds, but

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## CHEMICAL MARKETS. . . . .

practically none went to Brazil or to European countries.

Since the beginning of 1951, exports have been moving along at an increasing clip following a slump in January. Compared with a monthly average of 16.6 million pounds in 1950, exports of solid caustic in January were down to 9.6 million, rose to 17.6 in February, and government figures for March (as yet unpublished) indicate the phenomenal rate of more than 25 million pounds. These huge exports have prevented solid caustic from being as freely available as the liquid product.

Shipments of liquid caustic are maintaining about the same pace as last year, but this demand for export is fairly steady and not closely dependent on availability of solid. Because of high shipping costs, liquid caustic export is confined to adjacent countries: Canada, Mexico and Cuba.

**Outlook:** For the rest of 1951, exports of caustic will be well ahead of last year. Most countries are in a far stronger position financially than previously. Foreign industrial expansion calls for more caustic and new regional markets will be pioneered too.

Competition from other suppliers, such as the United Kingdom and Germany, will not be very active, this year at least, since the majority of caustic produced in those countries is needed by their own expanding industrial demands.

With more caustic production due in the United States during the next two years as the co-product of the chlorine expansion, supply prospects for the domestic consumer indicate the return of a buyer's market. In the future plans of the caustic industry, the export market will assume a more significant place than at any time since Korea.

### GOVERNMENT NEEDS

Bid Closing	Invitation No.	Quantity	Item
Purchase Division, Federal Supply Service, General Services Administration, Denver, Colo.:			
June 4	2634	103	Paints, enamels, etc.
June 4	2634-C		Wax, floor
June 4	2634-D	4	Glue & Rubber cement

New York QM Procurement Agency, 111 E. 16 St., New York, N.Y.:

June 11	51-1274	383,000 lbs.	Dishwashing Compound, Type II
	51-1290	47,808 cakes	Surgical Soap
		(4 oz.)	(with Hexachlorophene)

### GOVERNMENT AWARDS

Item	Supplier	Location
Armed Services Medical Procurement Agency, 84 Sands Street, Brooklyn, New York:		

Phenylephrine hydrochloride solution; tetracaine hydrochloride	Winthrop-Stearns, Inc. 1450 Broadway,	New York 18, N. Y.
Procaine penicillin	Wyeth Inc., 1401 Walnut St.,	Philadelphia, Pa.
Chlorophenical capsules	Parke Davis & Co.	Detroit 32, Michigan
Dextrose injection; dextrose and sodium chloride injection	Don Baxter, Inc.,	Glendale 1, Calif.
Dextrose injection, dextrose and sodium chloride injection	American Hospital Supply Corp.	Evanston, Ill.
Aureomycin, hydrochloride capsules	Lederle Labs Div. of Amer. Cyanid Co.	New York 20, N. Y.

Small Business, Economic Cooperation Administration, Washington, D.C.:

Medicinal & Pharmaceutical preparations	Parke, Davis & Co.	Detroit 32, Mich.
Nitrogenous fertilizers	Joseph Campau Ave., River H. J. Baker & Co. 271 Madison Avenue,	New York, N. Y.

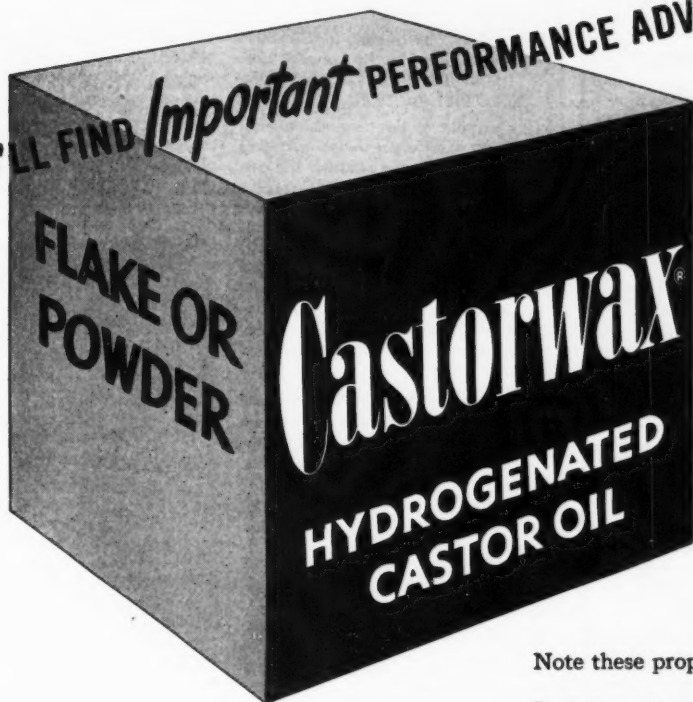
Navy Purchasing Office, New York:

DDT 100% tech. gr.	Niagara Chemical, Div. Food Mach. & Chemical Corp.	Middleport, New York
Insecticide, spray	California Spray Chemical Corp.	Richmond, Calif.
Insecticide DDT 75%	Stauffer Chemical Co.,	San Francisco, Calif.
Insecticide, powder dusting	Nico Dust Mfg. Div.	Brooklyn, N. Y.
5-lb can	Trio Chemical Works, Inc.	
DDT 100% Tech. Gr.	Powell Corp.	New York, N. Y.
Trichloroethylene	E. I. DuPont de Nemours & Co.	Wilmington, Del.
Insecticide DDT 75%	Premises Drug and Chem. Co., Inc.	New York, N. Y.
Insecticide Spray	Fluid Chem. Co., Inc.	Newark, New Jersey
Insecticide spray powder	I. R. Watkins Co.	Winona, Minn.
Insecticide powder	H. McConnon & Co.	Winona, Minn.
	DeGreeve & Co., Inc.	San Francisco, Calif.
	Dunham Chem. Co.	Los Angeles, Calif.
	McCormick Co., Inc.	Baltimore, Md.
	Wilco Co.,	Los Angeles, Calif.

Armed Services Petroleum Purchasing Agency, Washington 25, D.C.:

Aviation gasoline	Southwest Air motive Co.	Dallas, Texas
Grease, high temperature	Love Field,	
Aircraft Engine Oil	Standard Oil Co. of Calif.	San Francisco, Calif.
Aircraft engine oil	Continental Oil Co.	New York, N. Y.
	Shell Oil Co.	New York, N. Y.

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**2** Covers all phases of liquid extraction, including the physical chemistry of liquid-liquid equilibria, prediction of equilibria, thermodynamics of non-ideal solutions, choice of solvent, diffusion of liquids. Provides a theoretical discussion of mass transfer, design of extraction systems (flow-sheets and equipment) and describes equipment and operating characteristics. A brief review of important modern chemical processes using liquid extraction is given. By Robert E. Treybal, Prof. of Chem. Eng., New York Univ., 422 pages, 285 illus., 7.50.

## NONMETALLIC MINERALS

*Just Published! 2nd Edition*

**3** Gives accurate descriptions of where non-metallic minerals are found, how they must be treated for commercial acceptance and use, the size and distribution of markets, and price ranges. The book supplies significant facts on alumina, asbestos, asbestos-cement, asbestos-iron, asbestos-steel, asbestos-wood, asbestos-concrete, asbestos-paving, asbestos-roofing, asbestos-insulation, asbestos-cement, asbestos-iron, asbestos-steel, asbestos-wood, asbestos-concrete, asbestos-paving, asbestos-roofing, asbestos-insulation.

By Raymond B. Laddo, Consulting Engin., and W. M. Myers, 2nd Ed., 602 pages, 17 illus., \$10.00.

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## BOOKS . . . . .

**Materials of Construction for Chemical Process Industries**, by James A. Lee. McGraw-Hill Book Co., New York, N.Y.; 468 pp., \$6.50.

The purpose of this book is to indicate just what construction materials are most effective in resisting the corrosive effects of over 300 specific chemical products. From the standpoint of the chemical corrosion factor, the author, a CW editor, presents facts on the methods, materials and equipment involved in the production, handling and packaging of food-stuffs, sulphate paper, soap, synthetic resins, cane sugar and other process industries.

**Aspects of the Constitution of Mineral Oils**, by K. van Nes and H. A. van Westen. Elsevier Press, Inc., Houston, Tex.; 508 pp., \$9.

As the first in a series on "Advances in Petroleum Science," this volume reports the research results on the composition of petroleum, carried out at the Koninklijke Shell-Laboratory in Amsterdam. The major section of the book deals with the method for structural group analysis—a simple procedure giving the composition of oil fractions in terms of carbon distribution and ring content.

**Petroleum Facts and Figures**, 9th edition, American Petroleum Institute, New York, N.Y.; 491 pp., \$2.50.

The first edition in 14 years, this volume comprises a compendium of essential information on the petroleum industry of both a current and historical nature. Contained in this ninth edition are a new series of tables on business, operating and allied statistics as well as the long-term series of tables on utilization, production, refining, marketing, transportation, prices and taxation. Annual supplements will be issued for five years at which time the new edition becomes available.

**Combustion, Flames and Explosions of Gases**, by Bernard Lewis and Guenther Von Elbe. Academic Press, Inc. New York, N.Y.; 800 pp., \$13.

Here is a standard text for the student, engineer and research worker treating the physics and chemistry of combustion processes. The authors analyze the principal fuel-oxygen reactions as well as discussing, with the aid of graphic illustrations, the facts and theories governing ignition and flame propagation under turbulent and nonturbulent conditions.

**Techniques of Plant Maintenance—1951**. Clapp & Poliak Inc., New York, N. Y.; 228 pp., \$6.

Written by more than 40 experts in the field, this volume is devoted to recent developments in problems of plant maintenance. A companion-piece to the 1950 book on the same subject, this volume contains a series of questions and answers which were submitted during the Plant Maintenance Conference held last January. Topics covered include preventive maintenance, inspection procedures and frequencies, records and reports, training personnel for maintenance, planning and scheduling operations, etc.

**The Chemistry of Uranium**, by Joseph H. J. Katz and Eugene Rabinowitch. McGraw-Hill Book Co., New York, N. Y.; xxi+609 pp., \$7.25.

One of the National Nuclear Energy Series, this monograph is the first of two volumes reporting on the results of fundamental research in the field of uranium chemistry, studies undertaken during the course of the development of the atomic bomb. The element of uranium is discussed as to its occurrence, preparation, physical and chemical properties as well as simple uranium compounds—hydrides, oxides, halides.

## MEETINGS . . .

**Amer. Leather Chemists Assn.**, Griswold Hotel, Groton, Conn., June 11-13.

**Amer. Council of Comm. Laboratories**, Ambassador Hotel, Los Angeles, Calif., June 14-15.

**Mfg. Chemists Assn.**, annual meeting, joint outing with SOCMA, Greenbrier Hotel, White Sulphur Springs, W. Va., June 14-16.

**Synth. Org. Chem. Mfrs. Assn.**, joint outing with MCA, Greenbrier Hotel, White Sulphur Springs, W. Va., June 14-16.

**Amer. Plant Food Council**, annual meeting, The Homestead, Hot Springs, Va., June 14-17.

**Inst. of Food Technologists**, annual meeting, Hotel New Yorker, New York, N.Y., June 17-20.

**Canadian Gas Assn.**, annual convention, Bigwin Inn, Lake of Bays, Ontario, Canada, June 18-21.

**Chem. Inst. of Canada**, annual conf., Winnipeg, June 18-20.

**Amer. Soc. for Testing Materials**, annual meeting, Chalfonte-Haddon Hall, Atlantic City, June 18-22.

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### NEW PRODUCTS

Ansul Blo 17A

### NEW EQUIPMENT

Capacitor 22F  
Hook-on Power Factor Meter 22A  
Impact Breaker 22B  
Fluorocarbon-Metal Seal 22C  
Mixer 22G  
Power Factor Visualizer 22E  
Vacuum Flasher 22D

### TECHNICAL LITERATURE

**Chemicals**  
Dinitrofluorobenzene 40C  
Hydrogen Peroxide 40A  
Synthetic Crystal Products 40B

### Equipment

Air Circuit Breaker 40J  
Carbon Dioxide Recorder 40H  
Combustion Safeguard 40K  
Corrosion Protection 40N  
High-Head Pumps 40F  
Laboratory Equipment 40M  
Laminated Plastics 40E  
Leak Detector 40D  
Reciprocating Pump 40L  
Recording Meter 40I  
Welding Fittings 40C

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### Chemicals

Alkyl aryl sulphonates,

AB-concentrate flakes or powder 23d  
AB-40 flakes or powder 23a  
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DT powder 23c  
E liquid 23b  
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Asphaltic products 42e  
Butadiene-styrene lactices 1  
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Diiodo hydroxy quinoline B34a  
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Monobutylamine 2b  
Myristyl iodide 2c  
Neopentyl chloride 2d  
Odor neutralizers 17b  
Organic peroxides, lupersol DDM T29  
Paint driers 42c  
Para amino benzoic acid B34b  
Perfumes 17a

Phthalic anhydride 15  
Potassium fluoroborate 41a  
Potassium hydroxide 7  
Sebacic acid 25  
Soda ash 1  
Sodium carboxy methyl cellulose 27  
Solvents, petroleum 20  
Stabilizers for vinyl resins 42h  
Tin crystals 41d  
Coatings, automobile undercoatings 42f  
**Containers**  
Drum, fibre 16b  
Fiberpack 16a  
Leverpack 16c  
Stapak 16d  
Upak 4  
Shipping sacks, multiwall B28  
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## READER SERVICE COUPON

Mail to Chemical Week, 330 W. 42nd St., N. Y. 18, N. Y.

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POSITION \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY & STATE \_\_\_\_\_

### Editorial Items

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						40N

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				23a	23f	27	T 34	41b	42c	42h

Expires September 9, 1951

# BOOKLETS . . . . .

## Chemicals

### Hydrogen Peroxide

36-p. bulletin written in non-technical language as a reference booklet on hydrogen peroxide for plant foremen, workers, purchasing agents and industrial executives. Outlined are suggested uses of hydrogen peroxide in addition to recommendations for its use, handling, shipping and storing. Pennsylvania Salt Mfg. Co.

### \*N-Bromosuccinimide

42-p. annotated booklet by firm's director of research, Thomas D. Waugh, entitled, "NBS (N-Bromosuccinimide), Its Reactions and Uses." In discussing this organic intermediate that has become available in commercial quantities only recently, the author covers such reactions as dehydrogenation, addition, oxidation and its uses such as in the introduction of double bonds, increasing chain-length, etc. Arapahoe Chemicals, Inc.

### Synthetic Crystal Products

4-p. booklet giving practical data on synthetic single-crystal products such as sapphire, spinel, titania, calcium tungstate, etc. to be used in applications where extreme hardness, low friction, high dielectric strength and corrosion resistance are required. Linde Air Products Co.

### Dinitrofluorobenzene

Bulletin on uses, properties and price of dinitrofluorobenzene. Jasonols Chemical Corp.

## Equipment

### Leak Detector

14-p. booklet featuring a leak detector used for the location and measurement of leaks in evacuated or pressure systems by means of the mass spectrometer principle. Explained are applications and the probe and envelope application methods in addition to operating diagrams and details. Distillation Products, Inc.

### Laminated Plastics

Table correlating all systems of grade specifications as drawn up by industry and various government agencies to aid design engineers, specifiers and buyers select the proper grade of laminated plastic sheets, tubes and rods. Synthene Corp.

### High-Head Pumps

Bulletin showing design and construction features of two-stage pumps used in high head water works, building water supply, hydraulic elevators, oil refineries, mines, chemical plants, etc.; also included are operating data and performance charts. Economy Pumps, Inc.

\* Request must be made to company on business letterhead.

### Welding Fittings

16-p. catalog describing welding fittings for use with stainless steel light gauge pipe in sizes from 3/4 in. through 24 in. pipe; specifications and illustrations of concentric reducers, recessed couplings, straight and reducing crosses, laterals, and elbows are included. Tri-Clover Machine Co.

### Carbon Dioxide Recorder

Bulletin dealing with automatic carbon dioxide recorder, presenting application details, description of the orsat principle of operation, schematic drawing and selector chart as a guide to various mountings and models. The Hays Corp.

### Recording Meter

28-p. bulletin dealing with firm's new series of recording voltmeters and ammeters, explains the main features of the instruments with special emphasis on the newly-developed moving-iron measuring mechanism; included is information on the ranges, uses, and specifications of the various models. The Bristol Co.

### Air Circuit Breaker

Booklet providing information on low-voltage air circuit breaker, with an interrupting capacity of 50,000 amperes for application in low-voltage industrial and commercial power distribution systems, central station auxiliaries, motor starting duty, and similar uses. Westinghouse Electric Corp.

### Combustion Safeguard

32-p. catalog entitled, "Protectoglo Combustion Safeguard for Industrial Gas-Fired and Oil-Fired Burners," discusses 24 different safeguard systems, explains the "flame-rectification principle" of operation, and contains descriptions and installation drawings of the many types of system components. Minneapolis-Honeywell Regulator Co.

### Reciprocating Pump

6-p. illustrated bulletin containing construction details, dimension drawings and performance data of three inch stroke direct flow pump for use in oil fields or the general industrial line. The Aldrich Pump Co.

### Laboratory Equipment

4-p. bulletin on firm's line of laboratory supplies, featuring automatic titrator with two delivery units, pH meter that operates direct on line current (no batteries) and electrolytic apparatus. Wilkens-Anderson Co.

### Corrosion Protection

6-p. descriptive folder discussing pigmented organic corrosion resistant coatings and their application by brush, spray or dip—air dried or baked—along with a list of typical applications. Permolite, Inc.

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St. Louis 8	3615 Olive St., Continental Bldg.

## FOR SPORTSMEN ONLY...

*For what game would you use these hunting rifles?*



1 .351 caliber rifle—6-shot self-loader... for quick shooting



2 25-20 caliber rifle—7-shot lever action repeating... for close-range shooting



3 "Over-Under" shotgun rifle—top barrel .22 caliber, lower barrel .410 gauge



4 Double-barreled rifle—rugged and highly accurate even under the most adverse conditions

See next column for answers.

Just as these rifles are examples of the types frequently chosen by experienced hunters, the above products are typical of the "B&A Quality" Fine Chemicals now used by industry for a number of important applications. To meet today's chemical process needs, B&A offers an extremely wide range of these products. Many of them may be suitable for your requirements. For a complete listing, write today for booklet FC-6.



## BAKER & ADAMSON *Fine Chemicals*

### GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

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## FOR CHEMICAL USERS ONLY...

*Which of these B&A Fine Chemicals fit your production needs?*

### ★ POTASSIUM FLUOBORATE

Baker & Adamson Potassium Fluoborate has widespread use in the light metal industry as an oxidation preventative in aluminum and magnesium casting. This B&A Fine Chemical provides a combination of fluorine and boron in the form of easily-handled salts. Its uniform quality helps the user obtain consistent performance in many foundry operations.

### ★ LEAD NITRATE

Baker & Adamson Lead Nitrate is produced as a white crystal of uniformly high assay, minimum 99% (Pb(NO<sub>3</sub>)<sub>2</sub>). Such consistently high purity makes the product adaptable to a wide range of uses including the manufacture of lead azides (an ammunition primer), matches, colors, paint pigments, and printing inks, as well as other lead salts. It is also used as a flotation reagent.

### ★ CHROME ALUM (Chromium Potassium Sulfate)

So extensive is the use of B&A Chrome Alum that it has assumed the status of a basic chemical in many fields. Of consistently high assay, its uniform free-flowing crystals are also particularly low in iron, making the product suitable for such applications as a hardening agent in photography, a mordant in textile dyeing and printing, and in fur dyeing. An important new use is in the paper industry for increasing recovery of filler losses from paper mill white water.

### ★ STANNOUS CHLORIDE (Tin Crystals)

Major applications for B&A Stannous Chloride are as a component in tin plating baths, and in silvering mirrors. For maximum utility in storage and handling this uniform, white crystal material is packed in special polyethylene bags in 100 and 250 pound fibre drums.

Experienced hunters will recognize these guns as a good choice for bagging: (1) deer, similar game, (2) turkeys, foxes, woodchucks, etc., (3) small game, vermin, small birds, (4) elephants, rhinos.

# *What's ahead?*

That's the question that's worrying almost everyone these days.

We don't know all the answers. But we *do* know that sharing a part of your worry load with your supplier of basic raw materials can help solve some of your problems.

Because we maintain an efficient, well-informed technical service staff, we have been able to give many of our customers much valuable information on the raw materials they use.

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